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**Microfilm is published**

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**EDITORIAL**

THIS MONTH we already started an American and a UK version months later. If that's so, the news from the Las Vegas Commodore Expo shows that the C18 and the Plus/4 have about that much longer to live.

This year's show report makes it plainly obvious that the two machines have earned no support from independent US software producers, and so their future must be in doubt. Sales of the C18 have been good in the UK, but it's a fair American market which must determine its eventual fate.

Commodore's marketing has been to introduce machines which offer us new technology and low prices for the user. And rival Atari, meanwhile, has announced a whole series of eight and eleven for machines on budget prices, with a variety of computer peripherals and a unique user friendly colour coding system.

It seems that for once Commodore has been outspaced, and must fight back if the company is to retain its dominance of the world market.

The next weapon will be the C128, which, as our review explains, neatly integrates the features of the Commodore 64 by offering three modes of operation: a 64-comparable mode perhaps intended mainly for games; a 128K mode for serious users; and a CP/M operating system made for fully professional use.

If the C18 and Plus/4 were intended as the main presentation of Commodore's computers, then the sales seems to have failed. If they were intended as stop-gaps, which will soon be obsolete, then many buyers will be disappointed. The C128, though, seems to offer a more secure future to Commodore users. Let's hope that this time the independent software producers have more faith in the product.

# Instead of ten aliens, C for his Commodore

## What happened ne



### Saturday morning

Walked into my local computer shop.

Picked up usual with masses of kids enjoying the arcade games.

Surely there must be a better use for my Commodore 64. Helpful assistant suggests a Communications Modem.

Tells me it comes with a year's free subscription to CompuNet, a new network service, saving me a good thirty quid.

A bargain not to be missed, so I bought a Modem.

If I knew then, what I know now, I'd have thanked that assistant more.



### Saturday (one week later)

Turns out

My CompuNet membership came through this morning.

Hurriedly plugged the Modem into my 64's cartridge port, and hooked up to the telephone line.

Can't wait.

At last I can communicate with other Commodore 64 Modem owners and giant mainframes.

What's more, I can also access databases

throughout Europe and the U.S.A.\*

This is what home computing's all about.



### Sunday morning

During

Tipped in my CompuNet ID and personal password.

Wow, what a directory!

Decide to put my nose against other Modem users by entering Multi User Dungeon, an interactive on-line game.

Should stretch the old grey matter a bit.

Then a quick look in The Jungle. This is an open area where other Modem owners display messages.

See a Commodore user in File wants to sell U boat for £3.00.

Leave message offering him Mighty Gork on a straight swap.



### Monday evening

Move on to the CompuNet Software Park.

What a choice! Loads of high quality bargain programs.

Particularly interested in educational software, so I call up The Stud.

Took a free physics package to help with my exams.

# ...I've bought a Modem Commodore 64.



## ...next changed his life.



### Tuesday evening

Dad's turn  
I don't get a look in as he's  
hasn't been shopping.

Actually, it's amazing what bargains turn  
up. He even finds a new house.

Mum said she doesn't want to move and  
now his dinner's getting cold.



### Wednesday evening

I wonder I can join BLAZE\*  
the computer service for  
the British Library.

That catalogue of books does say  
back to 1950.

Should give me an interesting edge over  
my school chums.



### Thursday evening

Yes, I've a go.  
She keys into Prestel\*  
I'm getting over 300,000 pages of information  
and news.

What does she choose? The lunch hearts  
section.

She's disappointed. Couldn't find Simon  
le Bars' private number.



### Friday evening

I expect I receive a reply from  
the guy in File.

He lunches taking on Greek.

What's more he's written a program he'd  
like my opinion on.

He transfers it direct, using the free user  
to user software.

I've made my first computer pal.

It has really been a week.

Best one I've had since getting on.

Commodore 64

Sure I'm glad I got the Modem instead of  
all those alerts.

The Commodore 64 Communications  
Modem comes as a complete package with a  
year's free subscription to Compuserve, for just  
a 99.99 inc VAT.

Find out how a Modem can change your  
life. See it now at Duxons Currys Corner and  
selected Commodore dealers.

 **commodore**

\* For details of the service, or to place an order, call  
1-800-444-4444. \* Commodore 64 and Modem 1 Home (V.I.C.) of 1000  
Currys. \* North America only. \* VAT 10% 10% in 2000.  
\* Request card and subscriber charges. Prestel is a registered trademark of  
British Telecom.



## LETTERS

### PAGE

## Beach boys

I WOULD like to follow Beach-Head players would be interested in the following points:

Ignore the secret passage — go straight for the floor. If the surveillance aircraft is let dead on fire, it will continue to add 1000 points to your score as long as you keep landing it. For this reason, play at Level 1 (60 within maximum acceleration).

By counting the number of fighters you hit you can judge when the next surveillance aircraft will be on screen.

It pays to lose some ships in this stage in order to score up high scores by shooting down fighters.

Allow five ships to be seen at defending the beachheads. The distance of those ships varies from game to game, but the relative distances from each other remain the same — for instance if the aircraft carrier is at 12.5 degrees elevation, the other ships from left to right are at 44.5, 58.5, 74.5 and 94.5 degrees.

Having your sight fixed to the beachhead, every tank and bomber hit will score you points if hit early enough — a pay to get your fire tank through to Baha-Lin as this offers more obstacles and hence potential points over time.

Having decided on the most profitable scores, watch your units in the final bridge and you can be sure of destroying the fortress web, etc, your last two.

Using these techniques I've achieved a high score of 110,000 — but even then I've dropped several thousand points here and there!

Jeffrey Lister  
Sheffield  
Sovik

## 16K Vic + C16. OK?

I OWN A Vic 20 and 16K expansion pack. I wonder then the C16 has only 12K of RAM (more in the next — does that mean that it might be possible to convert C16 software to run on the Vic + 16K, or vice versa?)

G J Thomas  
Ammalford  
Dorset  
VIC 20 Basic programs will

run on the C16, but it would be difficult to convert C16 programs to run on the Vic since the C16's Basic has several more complex commands. Commercial programs couldn't be converted in a practical way — the memory maps of the machines are totally different.

## The CP/M business

I HAVE A 64 and intended to get a disk drive and CP/M cartridge to run COMOL. I am interested in pursuing a career which involves computers, particularly in the accounts field. Can you give me some advice on how to learn more about the subject, and on the status of the Commodore CP/M cartridge and using a with COMOL?

A Dwyer  
Jaffield  
Dorset  
THERE'S NO practical way

to learn about business systems except to take a course such as an BSCC through a technical college. Commodore's CP/M cartridge has been quoted in some specialist London retailers — it couldn't handle of a 2.88 chip, though we don't yet know if Commodore's implementation of CP/M allows standard versions of COMOL to be run. The new C128 will include a CP/M facility which may be easier to work with, if you can wait for the machine to become available. Try phoning Commodore's technical information service on 0800-080303 for more help.

## £10 prize letter

BECAUSE we know you're all busy people with plenty to do, we're offering you letters to spend your valuable time writing to Commodore. Between March months we'll give a £10 prize for the most interesting letter on hardware, software, computing, or life in general. The ball's in your court... get writing!

This is the chance to air your views — send your tips, complaints and compliments to Letters Page, Commodore Magazine, 10-12 Giff's Mansard Street, London WC2H 7PP.



## Copyright fight

I AM THINKING of developing an adventure program for sale. I think it best to sell it as a company rather than to market it myself. I have no experience of dealing with companies which make hot software, but it would appear very easy for any company removing software to copy it for sale without paying me. Is there any way around this problem?

A E Alcock  
Bristol  
Bournemouth

ANY ORIGINAL work is copyrighted by the very act of creating it — there is no need for it to be registered in any way. The best way to defend your copyright is to deposit a copy of the work with a notaire, so that in case of any breach of your copyright you will have proof of ownership. Legal action is expensive but is very easily needed — most software companies are too aware of the problems of copyright to knowingly violate your rights.

COMMODORE  
MAGAZINE  
LETTERS  
PAGE

# PC — compatible on the way

## DK buys Currah

**CURRAH COMPUTERS**, distributor of the Speed 44 video synthesizer, has gone into receivership. After an initial announcement that the Speed 44 and other Currah products would be sold by the assembler Wilroy Electronics, published pamphlets and software manufacturers DE'Tronics stepped in to buy Currah. Roger Richard, marketing manager of DE'Tronics, commented: "we have bought the rights to the Currah trading name, and the software copyright to the Currah range."

DE'Tronics plans to re-open as UK branch to market the Speed 44. Meanwhile Adam Electronics, producer of the real Adam Speed synthesiser, has announced a new device compatible with Commodore's Magic Voice software. Although programs like *Star 80* and the like are already available, the Magic Voice unit may never be distributed in large numbers. The Adam unit is compatible with all software designed for the old Adam Speed synthesiser, which is to be discontinued, and with 80% of the vocabulary of Magic Voice. Adam's Mike Shorecock explained: "The commands and syntax are the same as Magic Voice but words stored using the extended VOC command on the Magic Voice may not work on the new Speed Maker. In those cases the Speed Maker will select a guess."

"The Speed Maker copes with phonetic word construction and pronunciation, so it gives the best of both worlds. We've simplified the method of operation, and hope to make it available in February or US to."

We'll be carrying more details of the Speed Maker in our forthcoming speech synthesiser listings. More while contact Adam at Ryton Way, Harrogate, N. Yorks. 0422-740907.

COMMODORE'S IBM PC compatible machine was seen in working form for the first time in the UK at the Whet Computer Show in Barnham last. Although the unit was seen in operation running *Wordstar* and *Micro Office*, there were no details available on the operating system, cost, or date of availability. North America's PC has been reported as several dis-



tributors of all business systems.

Commodore affirmed its commitment to the business market — specifically the PC and the IBM series machines — which leaves the Plus4 looking as if it will be left in the cold again. See the Las Vegas CES report in this issue for more details of the new Commodore personal computers.

## Business and pleasure from Impex

**IMPEX SOFTWARE** has announced two products designed for C16 — Plus4 users. *Compass Pro 1.0/2.0* is the first business program for the Plus4 to receive official Commodore Approved status. It includes sales ledger, job chase ledger, stocklog, stock control, financial ledger, graphs and lists and includes phone facilities integrated on one disk.

The program will cost £94.95, or only £50.00 for the first 50 purchases. There's



also a CBM 64 version planned, which will be compiled for greater

operational speed.

For less serious applications the *SDI* joystick adaptor allows you to use standard D-plug joysticks with your Plus4 and C16. *Compass 12.20*, the *SDI* has a standard Commodore joystick socket on one end and the new miniature 8-pin D15 plug on the other, so you don't have to share away your favourite joystick. Contact Impex at Metro House, Strand Way, Wrexham, Merseyside, 01-906 6999.

## Interceptor's latest stunts



**GAMES SPECIALIST** INTERCEPTOR MEDIA has announced plans for the first batch of Commodore releases.

*Bigtop Barney* features a clown who needs complete four death-defying acts to win the applause of the crowd. There

include lightning walking, pedalling a sawmill and manipulating. The game will cost £1.00. *Caverns of Palanca* is a space adventure in which you must pilot a ship through alien caverns to recover your stolen astronomical device. Hazards include mines, tanks and monsters. The game also costs £1.00. *Villain run* on the 4 or 16k, 16k and costs £1.00. It's an arcade extravaganza in which you must proceed as your life of crime while avoiding the surveillance cameras of PC World. Lastly *Break Fever* allows you to control an intergalactic slacker with your joystick. The 64 game features beat ups, parties, back slaps and "The Shocker", and so it leaves the E safe of the tape features a specially mixed audio version of the game theme tune.

Contact Interceptor at London House, The Green, Tadley, Hants. 07156-2011 for more details.



## Tandata turns up trumps

**COMMUNICATIONS** specialist Tandata has announced a new software package which provides extra features such as saving, formatting data on disk, printing, moving files, data in word mode with 40 or 80 columns, long word processing facilities and sending data direct from disk to IBM/360 mode.

**Smart Modem** is available on disk and costs £M + VAT. The 64 version includes a full manual, and can be obtained from Tandata, Albert Road North, Middlesbrough, Cleveland, M6M 444J.

The company has also announced a price cut for its TMS48 multi-band rate modem. The TMS06, which offers 24/1200, 1200/15, 1200/1200 and 300/300 baud rates, has 1191 including VAT, a drop from £171. Tandata's MD Kay Pedersen said: "The price cut has been made possible by the increased volume of production and sales throughout our product range, which enables us to pass on the benefits to our customers."

## "Pack your bags, pachyderm" — CBM jumbo lumbers off

**COMMODORE's** big Christmas advertising campaign has run trouble with the RSPCA — after the most.

The campaign, which culminated in a television advertisement showing an elephant in boxing gloves, drew several complaints from members of the public. As a result the RSPCA objected, and the IBA, responsible for the content of all TV advertising, requested the advert to be discontinued. "By this time", commented Bob

Johnson of Commodore's ad agency Goodfield York Collins, "the campaign had finished anyway. In any case, the script had been cleared with the Independent Television Commission, and we had contacted the RSPCA before the ad was made. Their press officer told us that so long as the regulations on the treatment of animals were adhered to they had no objection to the ad. Unfortunately the press officer con-

stantly told the RSPCA, so they thought that we had not cleared the ad with them when the complaints arose."

"It seems we were singled out by a reflexive animosity — we wouldn't condone any ill treatment of animals, and no mention was made of other campaigns featuring elephants, tigers and panthers."

"We're now planning next year's campaign, but even we don't yet know what angle it will be based on. It's too early to say what form it will take."

## New progs aimed at Plus/4, C16

**COMMODORE** has announced a range of games and disk programs for the C16 and Plus/4, covering the games, education and utilities markets.

**Start Programming with Zork** and the **Krybitbytes** is a sequel to the popular **Zork** and the **Moushups**. It will be available in disk or cassette. **Hide and Seek**, **Number Builder** and **Number Chase**

are educational games intended to develop memory, shape recognition and arithmetic skills. **Jack Attack**, **Yiddish**, **Planet Adventure**, **Atlantic Mission** and **Shogun Strategy** are cartridge based games, most of which are priced at £19.99. **Mayhem**, **Barbarian Attack**, **Killer Worms**, **Wile**, **Crazy Golf** and **Five Aces** are cassette games costing £1.99.

There are six software disk-based adventure games planned for the Plus/4 only: **Zork**, **Atlantis**, **Starwars**, **Deadline** and **Impassad**.

Further on the future are **Introduction to Basic Parts 1 and 2**, **Games Strategy**, and for the Plus/4 only **Magic Disk 2**, a cartridge-based command production program, and **Time War's Art Master**, an adaptation of the CBM 64 program.

"We'll be receiving all these products as soon as they're available. Meanwhile contact Commodore at 1 Hunter's Road, Wotton North Industrial Estate, Croy, Surrey."

## CIL lets SX-64 get the information

**CIL MICROSYSTEMS** has introduced a Commodore SX-64 version of the AD5 data acquisition unit designed for the PCBs.

The AD5 interface fits into the slot in the front of the SX-64, and has four analogue inputs, two analogue outputs, plus of course the volts per sec with 12 bit accuracy, four TTL inputs, and four relay channels for control applications. The interface is programmed in CBM Basic.

The entire system, with SX-64, AD5 interface and software costs £1450. Alternatively the interface can be bought separately for £260.

For more details contact CIL Microsystems, Deep Road, Warrington, Cheshire, WA1 1ND, 0925 216415.



## 64

**Abstract**

[illegible]

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# SOFT★HITS

## What an old banger

Oh dear oh dear. Having commented before on how computer games based on film and TV shows tend to be disappointing, my claims are backed up by this ancient and stylish version of *Antarctica*.

the latest American TV series centered here a few months



back. *Antarctica* is a high-graphic program, and by a

point (except in a super crane fighter). Playing the game made me feel pretty much parent too.

How can I convey the game to pull between the hype for the game and the dis-reality? Start with an introductory screen looking like a book cover. *Antarctica*, then poured into a scenario of mixed searching, handily dealing with a mad bomber on the loose. Add in the total

search a more game version which looks like some ancient Spectrum 3D maze game, and you have the mystery of *Antarctica*. How much did Bug Bytes get involved with the marketing disaster?

**Program:** *Antarctica*, 64  
**Supplier:** Bug Bytes  
**Price:** £2.99  
**Graphics:** ★★ ★★  
**Sound:** ★★  
**Control:** ★★

## A lovely war

From *Line* is nothing to do with the arcade game of the same name, but is a pretty good war-simulator romp of its kind. You control a little tank wandering around a vast landscape seen from above. The details are colourful and the shooting is pleasantly good.

As you wander around looking for fuel supplies, you must fend off attacks from enemy helicopters and moving



infantry. Fuel supplies and armour strength are re-

plenished by landing a supply dump.

Being in a war zone is no wonder, since you must press the joystick button to shoot and release it at the right moment to decrease the shell when it's over the target.

If there's anything more to the game I haven't found it so it remains a graphically engaging but ultimately pretty average offering. Note though the clever musical score by Chris Cox.

**Program:** *From Line*, 64  
**Supplier:** Innoconcept  
**Price:** £7.99  
**Graphics:** ★★★★★  
**Sound:** ★★★★★  
**Control:** ★★★★★

## Don't rock the boat

Back to the water theme. Based on a offering from the pioneering New Generation, whose *Crab Hunter* was reviewed last month. This call, *Highway Hoppers*, is a game in a different dimension with smooth-looking graphics which demands a good deal of

precision to earn its game-factory performance.

Like *skater* sking, the



object of the game is to pass through a series of gates in a set time. The score is ex-

pected by setting up a course with eight gates with one too much or too few and the car. The people you control, hopefully through the gate. Should you run into trouble — at the bank — pressing the fire button makes you to paddle backwards.

Penalty times are added if you miss a gate, and a car by using different routes through them without breaking over the bank, in which case you risk another crash.

Additional features include varying water levels, and occasional road at water level and narrow passages.

An original and challenging offering, which until now has been ignored, will be a few more years.

**Program:** *Highway Hoppers*, 64  
**Supplier:** New Generation  
**Price:** £7.99  
**Graphics:** ★★★★★  
**Sound:** ★★  
**Control:** ★★★★★

## Googlies

*Cricket* is normally such a stupidly simple game that putting it onto a computer could only improve it, if only by shortening the time of play.

The latest version for the 64 is an excellent attempt to capture the skill of cricket without the accompanying boredom. There's a wide range

of player-defined variables such as bats, then members, ball levels, play level and so on. All these are selected by the person who is necessary to play the game.

The action takes place in two parts, a large scale animation which shows the bowler's delivery and gives the batsman a chance to respond, then a panoramic screen in which the players can control the batsman and the fielders.

The animation is good although it runs the risk of the



unreals and the sound of the steel drums — the sound effects are minimal. Still, it's

not to say a game which can be played by one player against the computer or by two players using two controllers. *Cricket* has well loved it and collectors may even be converted.

**Program:** *Cricket*, 64  
**Supplier:** Peaksoft  
**Price:** £9.99  
**Graphics:** ★★★★★  
**Sound:** ★★  
**Control:** ★★★★★

# SOFT★HITS

# SOFT★HITS

## Time buggy?

As most manifestations of time popular arcade games, *Time Prince and Moon Buggy*, *Battle Through Time* doesn't offer anything much new but it is a real little parking, time device.

You control a fighting vehicle through several cars

and, each one of which launches a conflict which will determine the course of human history. In such one your bugs, which can then sprout and transform into light all means an attack while destroying obstacles and jumping over potholes. In such case now you must travel on rails in the new cityscape.

You'll have to do very well to avoid the hostile potholes and obstacles consistently enough to get through any one race without being in danger of

hoppers. Although the speed is fairly amazing, they come toward the screen just



irregularly, and in the end, you've progressed through WWI, WWII and before you'll have to concentrate very hard

A few little extras like a scoring machine of Ben's house's life and an original form of high score table make *Battle Through Time* just that little bit better, but it would have been more to see the effort put into a more original game.

Program: Battle Through Time 64

Supplier: Activision

Price: £7.95

Graphics: ★★★★★

Sound: ★★★★★

Gameplay: ★★★★★

## Darkest Africa

This is the type of game the likes of which I would like to see more of. It contains music, and adventure features so you get all the interest of navigating with the computer without the tedium of reading screen after screen describing the next location's dangers.

Like a traditional adventure

each scene is described in a few lines of text at the top of the screen, and on the bottom is the important action - plus



your next course up. The graphics source in the middle shows your area that has to

be remembered by a joystick and typed inputs at the usual text screen type. The animation is very well thought out — Longman even thinks and looks in head on out.

The usual kind of adventure problem comes up — how do you get the mine's guide, which has a table in it? How do you climb which mine guide to reach? And how do you see in the night? It's easy to fall into the various traps — no light and the animals get

you — and as your guide for the lost Kanga Diamond there are plenty of dangers. With an interesting combination of ideas and relatively original ideas, *African Safari* has a good deal to offer all game players. Mind the crocodiles don't get you.

Program: African Safari, 64

Supplier: Simuland - Interlec

Price: £7.95

Graphics: ★★★★★

Sound: ★★★

Gameplay: ★★★★★

# The answer to your pro



## That's one answer, here's a more practical one—BREDEN'S BASIC

Much as we all love the Commodore 64 for playing games or running our business software on, when it comes down to the only craft of learning about the computer and doing some programming, there is much room for improvement.

That is why we created **BREDEN'S BASIC** — it was not the only extended basic around, but after reading the following information we are sure it is the only one you'll buy.

**BREDEN'S BASIC** — the Extended Extended Basic for the Commodore 64 incorporating High Resolution Colour Graphics, Structured Programming Techniques, Multi-Colour Graphics, User Defined Character Graphics, Music and Sound Synthesis and Turbo Facilities plus many other useful features.

**BREDEN'S BASIC** has more commands (131 in all, for the programmer to use) than any other Commodore 64 Basic ever available, and covers the Sound and Graphics chips in the highest extent of writing in Machine Code.

## Whirly-birds

**Z**aps Mission looks very much like Dyerholm's much-praised Thrive, having the same angled perspective and complex maze-like controls.

You have to pilot a highly manoeuvrable helicopter through a maze of walls and buildings, in order to reach an underground power plant to re-energise vital repairs. You can choose two types of control, normally in which moving the joystick up moves the chopper up or poles, in which it moves

as down as it would on a real helicopter. Left and right

carefully using the helicopter's throttle and a height meter.



forward by a mouse, and the fire button controls forward speed. Height has to be judged very

carefully too if you find yourself crashing into walls, which you thought were floors, or vice-

versa. Progressing in this game is very hard to make, though I am not sure if this is deliberate or not.

There is a real lack of control so you have to find every no point to make up. Apart from that there isn't a great deal of action, and Zaps Mission is probably more suitable for those game players who enjoy a challenge to make a game rather than being busy about the complexity or brilliance of the program.

**Program:** Zaps Mission, 44  
**Supplier:** Amiga  
**Price:** £7.95 **version:** £9.95  
**disc:**  
**Graphics:** ★★★★★  
**Sound:** ★★★★★  
**Control:** ★★★★★

## Lost oargh

**Y**ou've seen the movies, you've read the books, you've bought the poster magazines and the T-shirt now play the game. It is a bit weird that this game is so easily forgotten, as one of the producers think that they've put enough hard work into preparing for the game

rights, and they should've been to make any other success, making the game.

There are 16 screens with four animated graphics although the sprites are one-colour and the collision detection doesn't seem very precise about how things move. It's a bit weird that all over the screen is made of low resolution, that's used by every screen. Some of the logical thinking puzzle

wasn't really difficult but the puzzle was a bit weird, and I spent a lot

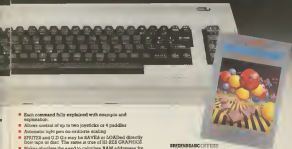


time to solve it. The game is a bit weird, but I enjoyed it.

Well, I think the game was a bit weird, but the thinking is creative and more logical than any other will probably find a good game of thinking to put out there.

**Program:** Lost Oargh, 44  
**Supplier:** LMS Digital  
**Price:** £9.95  
**Graphics:** ★★★★★  
**Sound:** ★★★★★  
**Control:** ★★★★★

# Programming problems?



- Each command fully explained with example and explanation.
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- EXPRESS BASIC comes with a 180pp easy to use manual plus disc and cassette (a presentation box)
- Less than £2 EXPRESS BASIC allows plenty of room for program development

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I shoot

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# CLIFF HANGER

AUTHOR - JAMES DAVY ORIGINAL MUSIC - BRIAN DOE

Thrill to the cartoon style action of Cliff Hanger, a really original, Wild West game. As Cliff the hero, you've got to stop the bandits showing up the canyon. But with its own brand of wacky cartoon action fun, things simply aren't as they seem in Cliff Hanger. For a start, the boulder you throw at the off bandits may just come bouncing back at you.

Cliff Hanger incorporates all the elements that have made New Generation games best sellers for the Spectrum, such as original ideas, superb graphics and hilarious happenings - but now it's available first for the Commodore 64. Featuring 36 separate screens, three levels of difficulty, one or two players scoring, Hall of fame and popovers compatibility or user defined keys, Cliff Hanger is set to be THE Commodore games playing sensation. Available from any good software store for just £7.95.

shoota  
nds, then  
ota you!

NOW  
AVAILABLE



# Shoot the Rapids

AUTHOR - PAUL BUNN

Ever wondered what it would be like to face the fierce white water in a top class canoeist slalom race? Well wonder no more because you can enjoy the fast action thrill of competitive canoeing from the comfort of your own armchair with

*Shoot the Rapids.*

It's a game that involves real skill because you must move your joystick to simulate paddling action. You must get through the gates of the slalom course in the fastest time possible, while avoiding the river bank and rocks. There are also many hazards like rogue speed boats and interfering beavers to worry about.

This multi level game features increasingly difficult river courses with superb graphics and smooth scrolling along the river. Qualifying times have to be reached to move onto the next course.

With Hall of Fame, one or two player scoring and joystick compatibility, *Shoot the Rapids* is probably the best sports action simulation game devised to date. Available from any good software store for just £7.95.

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**Simulation  
Software**

NEW VIDEO ACTION SOFTWARE  
DESIGNED BY PAUL BUNN  
FOR THE SPECTRUM



New Generation publishes its work according to  
their terms of sale and conditions of sale

# SOFT★HITS

## Diplomatic corpse

**C**hameleon was a great success in America, which says a good deal about the Americans. The scenario is quite promising: you control a heavily armed helicopter, which takes off from a jetted airport and heads into enemy territory to rescue kidnaped diplomats.

The diplomats have broken out of their barracks and are making a run for the ground,

being threatened by enemy tanks. You can bomb the tanks, land quickly, land up with 16 diplomats and take them home, then start out again.

Hazards include missile launching aircraft, the alien command mode, and aerial mines.

Having rescued one lot of diplomats, you have to blow open the next barracks and get the next lot. The tanks will surround more frequently and the aerials swing menacingly. But there's something missing from the whole cheap — the sound effects are pathetic. For

a start, have you ever heard an exploding helicopter going "Bloop"? The vehicle area's particularly well animated through the title screen.



sounds around unconvincingly, and when to you as they disembark.

The game's shortcomings

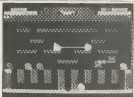
will probably be put down to its being somewhat long in the tooth, but overall of the Arcade offerings. Still, it's very playable and though it's no knockout visually, unlike for instance Yagor's Palace Patrol 2 (which is a similar game in many ways), Chameleon will probably please a lot of games players.

**Program:** Chameleon, 64  
**Supplier:** Amadech  
**Price:** £8.95 cassette, £12.95 disk  
**Graphics:** ★★★★★  
**Sound:** ★★  
**Gameplay:** ★★★★★

## Not enough thrust

**S**oftware Projects has been responsible for a good deal of excellent stuff, notably the unusual Missile Miler. It's unusual, there is to say what to make of this one, most it's surely a perfectly adequate little game of the type you might have expected to see: thrust in just one before they went up market.

You obtained a nice subatomic space probe which moves down upward and forever destroying alien eggs and the various Clouds. Year low-powered lasers aren't good



enough to stop the alien thrust salvoes so to knock them off you must judge positions off promiscuously and crash the little device. Once you've

tapped all the guards, and crashed all the alien, preferably before they hatch out and make your life difficult by flying around the screen, it's

on to the next screen, which is slightly better and features different aliens and guards although the basic layout is the same.

The no idea how many levels there are, since the game doesn't hold the screen long enough to find out but there are some nice special effects. I wouldn't object if someone gave me a copy, but it's not the kind of thing I'd want to crash out and buy, considering that the world might end in my minute and there must be better things to do.

**Program:** Thruster, 64  
**Supplier:** Software Projects  
**Price:** £7.95  
**Graphics:** ★★★★★  
**Sound:** ★★★★★  
**Gameplay:** ★★★★★

## Titanic

**T**here is an Ray Harryhausen's "Clash of the Titans" game, which has some features many of the elements of Greek myth and legend which wrap up in the film. It's an unusual looking game, reminiscent of some of the Atari video game cartridges with large chunky monsters and good colours.

You control Pericles,

entrusted in the winged horse Pegasus, to hit always to fight the temple and speak



with the Oracle. As you swim through the thick over mystic temples, apes, and

monster-headed centaurs, harpies, Gorgons, harpies and scyllas try to stop you. Luckily you thought to equip yourself with a sturdy Greek Lance before leaving home.

A great deal of dodging and jumping comes with various scrolling landscapes and some nice effects, especially the floating Power Orb which can replenish your energy if you rendezvous with them. Walking requires more effort to fall, and once

you've tapped the lot and got through to the temple your problems aren't over — you have to climb the temple stairs avoiding falling boulders to get to the Oracle.

Good fun, though nothing over-the-top.

**Program:** Titanic, 64  
**Supplier:** Bantam  
**Price:** £7.95  
**Graphics:** ★★★★★  
**Sound:** ★★  
**Gameplay:** ★★★★★

## Wheelies

**I** can't quite follow the logic behind this one. I'd have thought the people are rather concerned in avoiding a crash on their BMX bikes as they're trying to have fun playing with their computers. I wouldn't have thought the two

mixed, and so I can't believe that Hyper Bike will have much of an audience.

Well, it's a computer program, a sort of Danzettes on wheels, in which one or two players can pump their BMX bikes along, racing against the clock and competing in stunts, stunts and pumpovers. You can do wonders by having the



eye button, and I'm told that it's all very rubbish. —

especially when you fall out. I don't know, I'm over 10. Best BMX rider, in theory.

**Program:** Hyper Bike, 64  
**Supplier:** PMS  
**Price:** £7.95  
**Graphics:** ★★★★★  
**Sound:** ★★  
**Gameplay:** ★★★★★



# Learn new skills for home and business

*Mike Grace uses his Brainpower to find new uses for your micro*

I'M SURE this doesn't happen to you, but I did find, even today, that my late computer friends gave me a measure of awe and disquiet at my ability to dig quickly at my desk, screen, keyboard with a few paragraphs of text or a bar chart, or the cursor blips the latest price. "Yes," they said, "it's all very easy — but what does it do?"

For a year or so after buying my first computer, an Xc 16 which still works wonderfully for my children, I described the device that a computer did many wondrous things for me — and I hunted for software that would prove it. Often I came away disillusioned, often I had to come to terms with the reality that a pencil and paper (and often a calculator) did things much quicker and easier.

Then came the word processor and spreadsheets and the database. It had now moved up to a Commodore 64, and it was a learned my micro began to prove itself. Spreadsheets could be edited and changed quickly, addresses printed out, and so for the word processor — well, for a writer there's no comparison. But I was still haunted by the realization that most people don't want to do these things anyway.

## Learning

I was finally coming to terms with the fact that my computer was just more like me — that I didn't have to justify living and using it — when I checked upon some new software by a company called Trojays Publishing which has made me think again. At first it seems that someone is producing something that will be of value to people who will never care what they can use their computer for. At last I may be able to look at my own computer trends and when they ask me what it's for — I'll be able to show them.

Trojays created a series of titles based on business concepts but aimed at the home user: the three titles I bought were definitely aimed more for the business user but other titles like *Wordstar* and *Numbers* or *Stack* suggest a more educational bias.

The basis of each program is a mix of learning (using traditional common and newer techniques which the computer will correct and score) and applications which you can use in your own situation. Thus you get the best of both worlds, and in my own case all three programs followed a similar pattern of a teaching section and an applications program which I could refer to for my own use.

The three programs I most want *Project Finance*, *Forecast* and *Brainpower*. To be fair to all three I should point out that so

get full value it would be better for me to wait the review in a year's time, as they all tend themselves to a depth rarely finding much software around, but if you take this report as a preliminary note then you will be able to judge my feeling more fairly.

They were all neatly packaged in the familiar large mounted plastic box with labels for content or disk plus manual. Each box has a distinctive cover showing the outline of a head and an appropriate manual inside (graph for the *Forecast*, etc.) which shows that some thought about image and message has been given. Before each course is the title "BRAINPOWER — APPLICATION THROUGH LEARNING". As I opened the first one I had no idea how accurate this title would prove to be.



*Forecast* is a system of forecasting or predicting the outcome of events such as future sales, share prices, and so on. It is also a method of analyzing the various factors that can cause the difference between success or failure in a project.

Using computer-based the program gets literally into the quantitative methods of statistics like means, *etc.* — then, diagrams and numbers rather than equations) and very carefully you are learning about things like linear costs, control models and regression analysis. These were all concepts completely new to me, and it was gratifying to realize that I was picking it up fairly easily, which is more a reflection on the standard of teaching than my own ability.

The learning process is similar for each *Brainpower* program. You are provided with a manual containing well-presented examples and explanations, and a program

disc (tape or disk) which you load into the computer and which you use in the same sense. So, for example, the manual talks about a scatter graph and the computer will draw a sample on the screen. The idea isn't so well, being suited to the machine. At the end of most chapters there is a short exercise to test your understanding, and if you get below a certain percentage of marks a message "PERHAPS YOU SHOULD READ THIS CHAPTER AGAIN" acts as a kind reminder.

I found the flowchart of production forecasting and was more fairly expert at five points moving averages. Both a method of double exponential smoothing and standard decomposition. One minor computer or game graphics idea if you didn't know we were talking about forecasting, don't they? One point that is possibly due to early release was that I found some rather technical errors in the screen on *Mail's* manual (pages 11-13 in the manual) but these should be corrected in later versions of the program.

Having mastered the theory we can move on to produce our own forecast using the applications program. Here the computer asks you to complete the data and then it goes into a kind of wizard for some time. The manual even tells you to go and have a cup of tea while it does all the complicated work. Finally the result comes up giving you an idea of the production, without having to do all the complex mathematics yourself.

Being a newcomer I didn't have the opportunity to try this out myself properly, but I had a go and was rather disappointed when the program kept telling me to use a *MATHEX* BASIC-1111 method on my example, as I have no idea what a matrix diagram is and could find no mention in the glossary or index. Perhaps the mystery will solve itself on a further reading, but at the moment it remains shrouded in the depths of the *48 Plus* has been revealed in the new edition — *GG*?

## Finance

The new program is *Project Finance* which seems more fun and is definitely easier to learn. *Project Finance* teaches you how to break tasks, problems, any situation into "single meaningful components" (in the words of the package tape) and is entirely all about organizing your work. It is the ordinary stuff that might seem to be behind the scenes, but not so.

Take any task like manual description, someone writing up a report and it can be divided into various jobs that you need to do such as finding the references, doing stuff, making up, etc. I New whilst all

these are obvious, often the best way of carrying out these tasks is not. Find out the most efficient method at the earliest time is the secret so that you can maximize effort yet minimize efficiency. For example if we think of making our shop, it would cost more money if it was built too soon (wasting capital and increasing interest on the bank) but would lose sales if done too late.

So a business ought to know exactly when to start the shop, what is the best time you can do it, and what procedures are normal to ensure a smooth sale. And a last job in the field of business this applies, for you could be organizing a school first planning the education of your children, building an extension on your house etc.

The manual leads us through the pre-requisite network planning and critical path analysis towards such master concepts as flow and interlocking flows, once again with a simplicity that I found endearing. One aspect in this package is the the actual programming is better, for example you can leave the program by pressing a key without having to turn the computer off, and the layout and screen viewing seemed better than in *Flucom*.

## Applications

Moving to the applications package the principle is the same. Once again you enter the details of the computer store all the same. I found the report printing a little dodgy on my Gemini 10X, possibly an interface problem as I couldn't print out the bar chart, but I was able to make a print-out of a network which I set up for making a comparison if you haven't worked through the teaching section some business would be a little hard to understand and it's a shame that on the 64 you can't just cut and paste graphics like on the manual illustrated in Figure 1) but perhaps I was too much for my money.

Finally for this article we come to



**Flucom** — the third program for the person starting up their own business.

This is the most comprehensive of packages of the three I've seen, and really leads itself to a full course. The manual covers items such as VAT, the legality of business, the benefits of a partnership versus a limited company, tax advice and many other items of information essential to anyone seriously thinking of setting up any business — however small. Although this information is available elsewhere it is really easy to get to grips and understand all you need to know in the few well presented pages in the manual.

Chapter 2 about on Planning a Business is worth far more than the rest of the whole package. In these are 14 pages of questions you have to answer (and that means think about) concerning starting out. I found the depth of the answers surprising for such a small book but I've read a few others on setting a business and after mulling through it all myself I had remembered several facts about my own enterprise which I hadn't considered before. It takes time to write so naturally put with depth

## and understanding.

The manual then moves on to discuss assets and liabilities, equity and profit, and topics such as the importance of correct cashflow. I found the explanations simple to understand, and as before the programming enhances the words. As with the other manuals simple but thorough are included to clarify the concepts.

Finally there is an applications program into which you load all the information about your proposed business for your evening copy-out on the 64 do all the work. Up come the assets and liabilities and the balance sheet figures are presented for you to study that you do need to know all your facts first.

This package is visually not as spectacular as the other two (especially the company examples) but it seems to have a much more direct application to the small business. And come to think of it — the large business too will.

So, in conclusion, what do I think of *Flucom*? As I said earlier, you do need to use your brain — quite a lot. The subject matter is substantial and if you're going to pass anything from the applications package you need to have done your homework first. But, in my opinion, that is one of the strengths of this series of software.

Computers aren't here (despite the adverts which often try to tell you so) — they're amazingly powerful tools which should be helping us in our daily lives. It's a matter of whether correct path analysis and statistical information is the stuff of everyday life — but then again isn't it?

## Capacity

The great strength of these programs is the time and effort that's gone into making them complete little time savers — and this does this job. An £19.95 program for the tape version and £24.95 for the disk version is complete very reasonably in value with the high priced software for most business users. But it isn't what it costs that should matter — it's what it's worth.

I've a few niggles, but they are slight. The word error I found was the master manual mention I've already mentioned in *Flucom*, though Tapesoft promises to correct these in future editions. Other mistakes inevitably creep in, some involving very slight errors in the manual such as calling the current a value box when it's a float which are I suspect proof-reading errors in the transcription from one computer to the next. The explanations both on screen and in the manual are excellent for the first time user.

There are well-produced items of software which succeed in being different and stretch the capacity of the machine — and (quite significantly) for user, you and me. That is where the *Flucom* series shines, it treats us as adults who really want to acquire knowledge that we can apply out of our computer.

You won't find these programs a few more minutes with your money. You will find, if you put the time and effort into using them properly that you have a tool that will teach you a lot and help you control your investments. ■

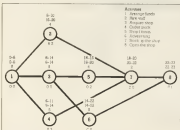


Figure 1





# Double or quits — the micro gamble

*A report on the Las Vegas Consumer Electronics Show by Chris Jenkins — where the C16 and Plus/4 have lost, can the C128 and 12CD turn the trick for Commodore?*

EACH YEAR the Winter Consumer Electronics Show is held in Las Vegas, and the Summer Show in Chicago. Traditionally, the shows are a chance for the major computer manufacturers to promote their wares, both to trade media interest and to secure the contacts from software manufacturers and dealers.

## Monopoly

Commodore's presence in Las Vegas stand emphasized once again the company's preeminence in the small computer field, but, despite the usual confident press statements, things were not looking good for one of the latest products, the C16 and the Plus/4.

Not one independent software manufacturer was showing programs for the C16 or Plus/4. The Plus/4 has not been mentioned at all in the US, perhaps because IBM and Apple later monopolized the "serious applications" market to such an extent that the lesser Plus/4 couldn't attract buyers. The C16, touted as a "full computer", has had a limited degree of success, but apparently has suffered in

comparison with the out-price Atari machines.

The failure of the Plus/4 and the C16 now looks definite, despite the C16's relative success in the UK over Christmas. Commodore's US marketing manager, Frank Leonard, commented that the machines would have to be "impositioned on the market" — perhaps a euphemism for being discounted.

The Commodore 64, meanwhile, remains the flagship of the Commodore line. A price cut to around \$349 is on the way — a further indication that the C16 is not thought to be worth supporting — and there was a good deal of software support evident from companies large and small.

## Exciting

The big news, however, is the launch of two new and exciting Commodore personal computers, the C128 and the big-brother 12CD.

The C128, if it comes into production in the form presented at the show, is certainly Commodore's most exciting product yet. It operates in three modes which make it

ideal for games, small business and fully professional applications.

The first mode, C64, is fully compatible with the Commodore 64. All 64 software and hardware can be used, a feature which guarantees that C128 users will have an enormous base of usable software as soon as they purchase the machine. It's the first time Commodore has introduced a micro which is "back-compatible" with a previous product, and it's a move which should signal the failure of the Commodore 64 for some time to come.

In C128 mode, the machine runs a new version of Basic 7.8, which has over 140 commands, statements, and functions, including all those from the CBASIC and the C16/Plus/4. The 128K RAM is expandable to 512K using an external RAM disk option. The 4802 processor used in C128 mode is a compatible version of the 6802, which features 48K ROM.

An exciting extra for word processor users is the addition of resolvable display modes, 48 columns by 25 lines or 80 columns by 25 lines.

For business users, the third operational mode of the C128 is the most striking of all: CP/M mode.

CP/M, one of the most popular business operating systems, runs a 286 processor (the one that found its way into the Sinclair Spectrum and many other non-Commodore computers). It's not new technology, but it's new to Commodore users. The Commodore CP/M mode supports the optional CP/M fast disk drive operating system.

## Inspired

Taken as a whole, the C128 seems an inspired design which can perform in all things to all men. It protects the future of the 64 and its millions of users, offers the possibilities of much more powerful programs and an even better Basic, and has a great deal to offer the casual user — much more so than the ill-conceived Plus/4. As a direct competitor to the IBM and Apple personal computers, the C128 could be a master of a different value for money — though no one would be foolish enough to put an estimate on its retail price yet. It's due for release in the

pping, and the top hold 120.

The LCD is a portable designed for on-site use in a number of applications, word processing, calculations, data storage, memos, and communications through the built-in 300 baud modem. There are eight built-in software packages and a flip-up 80 x 16 LCD display. The processor is a 65C02 running from 3.4 with full compatibility with all Commodore external peripherals — as you need, for instance, type a report on the train then print it out back on the office. Armed to compete with machines like the Radio Shack (Trsidy) 100 Apion, PK 3 and NEC PC400A, the LCD will certainly find a market if the software is stimulating.

The new 1070 5 1/4 inch disk drive is compatible with both new machines and the 64, and has a storage capacity of 350K. It incorporates CP/M routines and its own 4502 processor with 12K ROM and 2K RAM. Data transfer rates vary between machines — 300 cps with the 64, 1500 with the 128 and 5500 under CP/M control.

There was no sign at the CES of production models of the 16-bit 1800C compatible computer, but a prototype few were shown an operational version of the machine is shown. There are still no firm release dates, but Commodore likes to show a version in the US soon. Again, for further details on the Amiga Line as started, but Commodore registered claims that the machine was due schedule.

#### COMMODORE LCD PORTABLE COMPUTER



#### NEW COMMODORE PERIPHERALS



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**GENERAL FEATURES:** Basic in applications software. Built-in 300 baud modem for telecomm. communications. Runs on battery or external power. Automatic power down that saves battery life.

**BUILT-IN SOFTWARE:** Wordprocessing, Scheduler, BASIC, File Manager, Calculator, Monitor, Spreadsheet, Memo, Pad, Address Books, Terminal Emulation. **SYSTEM FEATURES:** 65C02 CMOS microprocessor, 10KHz, 10K CMOS RAM, 10K CMOS ROM. Built-in BASIC 3.0. Battery reset switch.

**DISPLAY:** 80 x 25 Liquid Crystal Display, 400 x 100 resolution, graphics mode. Upper and lower case characters. **KEYBOARD:** Typewriter style, 71 keys, 8 programmable function keys, 4 cursor keys.

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**RECOMMENDED PERIPHERALS:** 1541 or 1571 single disk drive, MPS 602 or MPS 603 processor, All Commodore serial peripherals are compatible.

**DIMENSIONS:** 11" x 10 1/2" x 1 1/2" (H x W x D).

**WEIGHT:** 900g, 100g.

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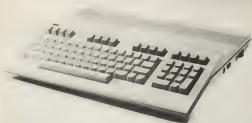


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**128 MODE** • 6580 microprocessor (3 or 2 MHz) 100% compatible • 5801 sound interface chip • 128K RAM expandable to 512K using RAM disk option • 48K ROM • 16K ROM for DOS support • BASIC 1.0 • machine language monitor • 40 x 25 lines (112 x 200 resolution) • 40 x 25 lines 640 x 200 resolution • 16 colours • 3 speeds (40 columns only)

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**SYSTEM FEATURES** • Built-in 8502 microprocessor • 1K RAM • 12K ROM • Built-in DOS • High data transfer rates • 300 cps under CBI control • 1500 cps under CBI control • 3000 cps under CP/M control • Up to 4000 cps bus rate

**MEDIA CHARACTERISTICS** • Commodore Standard (CSC) • Double sided/both density • 200K storage capacity (formatted) • Compatible with 1541 and 1601 disk drives • Supports program, sequential, random and user files • CP/M compatible (MFM) • Double sided/double density • Up to 400K storage capacity (formatted) • Boots up on 1541™ system 34 format (Xcopy™ and Xcopy™ formats compatible) • Supports most CP/M™ files

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THE VIC-20's memory map represents the arrangement of memory as it is seen by — in other words, interpreted electrically by — the 4002 chip which performs most of VIC-20's computing. Generally, this article uses the phrase memory map to refer to the 4002's map. However, note that every chip which can address memory has its own individual memory map. The VIC chip itself has another less complex memory map which is crucial in understanding graphics.

The 4002 uses 16-bit addressing and can access 1 K (1024) memory locations. An handy note: chips are conventionally numbered 0 to 65535, in hexadecimal notation, from 00 to FFFF.

The memory map shown in Figure 1 is divided into 16 equal 9K blocks (9K = 9216) — 6296 bytes, plus a 3000-bit (bit) — in a convenient subdivision. Conceptually, each block can be further subdivided into pages of 256 bytes each, with the zero page at 00-1FFF, page 1 at 10000-20FFF, page 2 at 20000-30FFF, and so on. This is important because the 4002 treats page 0 and 1 as special cases.

Figure 1



Here's an explanation of the map:

**RAM from 0000 to 1FFF (0-1FFF).** This 1K block of RAM is necessary to run BASIC and has many functions, described later.

**RAM from 5100 to 5FFF (4096-4999).** BASIC programs have to be stored in a single continuous area of memory, so BASIC is stored here in the unexpanded VIC. The screen is also stored at 512 bytes in the region. The screen normally starts at 5120; in this configuration (when moved), in BASIC it has only 4096—512 = 3584 bytes available.

**ROM from 6000 to 7FFF (5952-6943).** The VIC character sets are stored here. There are 128 characters in the upper-case—graphic set and 128 characters in lower—uppercase set, moreover, each is duplicated in reverse. Each character definition requires eight bytes (64 bits), so the total amount of memory required for character definitions is 128\*2\*2\*8 = 4096 bytes.

**Input—Output chips occupy a total of 4K bytes.** The VIC chip uses 5000—5000F, VIA 1 uses 5F10—5F1FF, and VIA 2 uses 5F20—5F2FF.

**RAM from 8000 to 9FFF (7968-8959).** This is color RAM, determining the color and type of characters on the screen. Only the lower four bits of each byte in this area are significant.

**ROM from EC00 to 5FFF (49152-49503).** BASIC and the computer's operating system are stored here. The kernel ROM holds all the information needed for the computer to interface with the outside world, for instance through the screen and keyboard.

## VIC PROGRAMMING

# The Vic 20's mind at work

An extract from *Basco West's* definitive guide to Programming the Vic, looking at the micro's memory map

One drawback of the unexpanded VIC-20 is its tiny memory. VIC comes with RAM from 0 to 5FFF and with 4K of RAM for BASIC from 5100 to 5FFF. Because of this, the unexpanded VIC is sometimes called the 3K VIC. However, when the screen has taken its 512 bytes from BASIC's 4096 bytes, only about 2596 bytes remain.

Memory expansion is essential for serious programming with the VIC-20.

One neat Pro Commander RAM expander does it, and generally the area is left unused. It is not designed in BASIC and is therefore always an add-on separate from BASIC. Some commercial utilities have RAM here, installation by SYS 40000 is special. You'll see later how a 3K RAM expander can be modified to put RAM here, and ML, with some may find this a convenient for storage of routines which they wish to be protected from BASIC.

**3-4000-5FFF.** This is the most common location for ROM cartridges, almost all cartridge games have here. In addition, if the proper bytes are present starting at 3A000, programs here will automatically begin to run when the VIC is turned on.

### Reconfigured

As its memory is expanded, the VIC-20 reconfigures itself in several ways. Thus, programs written for the unexpanded VIC may not work when memory is added, even though there is clearly no lack of memory space available. For the moment, attention will focus on the unexpanded VIC, returning later to examining memory expansion in depth.

It is possible to use BASIC to PEEK all locations from 0 to 65535. In a sense, this would provide you with a memory map. But it would be relatively meaningless without some further instructions.

### Program 1

```

0 DATA 32, 115, 0, 248, 37, 32, 138, 385, 33, 3, 255, 132, 25
1 1, 33
2 DATA 252, 33, 255, 215, 142, 254, 2, 169, 0, 133, 253, 173, 1
3 34, 2
4 DATA 133, 254, 128, 169, 182, 243, 28, 3, 169, 3, 241, 21, 3,
5 84, 172
6 DATA 254, 3, 138, 177, 253, 169, 253, 169, 0, 153, 0, 169, 25
7 3, 0
8 DATA 158, 192, 0, 388, 239, 76, 181, 334
9 FOR J=0 TO 65535: PRINT: NEXT J

```

BASIC can now occupy its entire 3K. 5000-5FFF. The larger area can be occupied by RAM, ROM, or by a combination of the two. Commodore's 3K RAM expander can be used to occupy any of these blocks; the 10K expander normally puts RAM from 5000 to 5FFF. BASIC can fill whatever extra RAM follows from 5100 on. Thus, an 8K expander can occupy 5000-5FFF while 8K for ML or data storage. But doesn't normally add to BASIC's free memory.

**5000-5FFF.** This 3K area is the add

Program 1, which works with any VIC-20 regardless of memory configuration, shows you the contents of any section of VIC-20's memory up to 65535 bytes. With a pen you can select a portion of memory and display its contents in black on top of the screen. For the display to function, mode by pressing SHIFT and the Commodore logo key. This program is a useful investigative tool, with typing into your VIC and saving for later use. It also plays the selected portion of memory 80 times a second, giving for all practical

program. It contains picture of a 3-1/2" floppy disk, RUN - STOP-RESTORE to turn it off. Note that it will not operate while the cassette is in use, or with some card decks.

Accurate Program 1 with a statement of the form SYS 828.0,0 where X is the starting address and Y is the number of bytes (see Figure 2).

The first example shows how the input buffer operates, nothing happens until RETURN is pressed, then an entire line is input and stored for several words. You can use BASIC being converted into video letters, and you can watch as stored variable names like CONVERSION have

because a buffer is able to change to reflect the screen's organization, the top left of the last character of each BASIC keyword is in, making this word appear on screen on the screen. The buffer which hold details about each currently open file, are another example.

**Buffers.** A buffer is a section of RAM reserved for input or output. Buffers include the input buffer, the keyboard buffer, and the 800 byte tape buffer at 80020-80319 (828 1000), which is important while reading from and writing to tape.

**Patterns.** Zero page (locations 0-255) contains many patterns in the form of a

function of VIC 20 to be modified. The memory management program described earlier changes the value in the register which looks in the keyboard every month of a second. Sometimes BASIC contains vectors the kernel itself is a good illustration. A jump table uses a similar approach, except that each address is provided by an MI, JMP instruction and therefore occupies three bytes instead of two.

**Flags and temporary storage.** These are programming equivalents of a good-down memory, available in RAM. They keep track of a wide variety of events while programs run, ranging from whether the student is in a subroutine made to the position of the cursor on the screen.

**Programs.** Most of BASIC is subdivided into the BASIC interpreter and the kernel. A collection of many interpreted machine language routines. The only substantial programs outside BASIC is a-HIGH, a routine in location 83150-83159 which handles individual BASIC characters, a-CHANGE is copied out of ROM into RAM when the system is started on or reset. Having the routine in RAM is especially handy than using a ROM routine in this permits new BASIC keywords to be added to the original basic using a program called a-words.

**Accumulators.** General number storage units that in RAM. Two floating-point accumulators, where numbers are added, multiplied, and so on (801-804 and 805-808), a pseudoregister number storage area (809-810), and the register (811-812). The memory management program shows the three bytes of the clock, changing, and PRINT PEEK(816)/256 + PEEK(817)/256 + PEEK(818) is related to PRINT T.

The stack. The stack can't really be understood without knowing machine language. Essentially, it is the top of RAM from 8190 to 8199 (828 511), has are used by the 800 macroprocessor to store temporary information, particularly information relating to subroutines. It is currently less than about 1000 bytes.

Figure 2

828 828 843 88	Displays the input buffer, showing line input
829 831 856 32	Displays numbers as they are formatted
830 833 857 38	Shows the screen line buffer
831 835 858 30	Shows some BASIC keywords
832 838 859 30	Shows the keyboard buffer
833 841 860 30	Shows the formatted position of the cursor
834 844 861 30	Displays the entire zero page
835 847 862 30	Shows the VIC zero command
836 850 863 30	Shows the contents of a 3-1/2" disk
837 853 864 30	Shows the locations which make up the VIC's clock
838 856 865 30	Shows how part of a BASIC program is memory is stored

the screen and word found.

The next example shows numbers as they are stored before being printed. It is possible to write an MI program to convert numbers however you like. For example with a SYS below the decimal point (0.5) rather than .5.

The third example shows a table which keeps track of the way VIC's 23 character keys are linked. Use the space bar (space) just the end of a few lines to watch the effect, then scroll the screen and see the links move to match.

## Buffer

Type in SYS 828.01,0 and press RETURN. A screen of six 40 symbols should appear at the top left of the screen. Inside this program PEEKs values directly to the screen, and most 40 is the video representation of a zero byte, this means the keyboard buffer is empty. To show how a screen uses the zero program is -0 GET X: FOR I = 0 TO 800 NEXT GOTO 0- and END. As the delay loop allows you to spend keypresses on the buffer, and you can see the later keypresses being up after the earlier ones.

Don't worry if you don't completely understand the examples yet, all will become clear in due time.

To see how VIC's RAM is prepared for BASIC, you need to understand certain software structures. "Looking at Memory," the program you just typed in, can help, and help on will present a full memory map showing how software fits into the hardware framework of the VIC 20.

There are several types of software hardware:

**Tables.** These contain data, not programs, and have inaccessible ones. The screen link table and ROM keywords created by the previous program are typical. The screen table is in RAM

just of adjacent bytes. Information about the storage of BASIC is held in the screen. The pair of byte forms an address in standard low byte high byte format. For example locations 43 and 44 are the pointers to the beginning of BASIC program storage. On the unexpanded VIC, the normal values held in these locations are 1 (801) and 16 (810), indicating that program storage starts at location 1 + (16\*256) = 4096 (8100).

Warning: These variable pointers, as they are also pairs of bytes that contain addresses. However, while pointers merely hold address information, vectors are used to tell the computer where to find routines to perform certain important operations. Each vector is set up to point to a routine within BASIC or the kernel operating system where the system is turned on or reset. Altering these values disables many

Figure 3

	0	1024	8288	8288	8288	8288	8288	8288	8288	8288	8288	8288	8288	8288	8288
Unexpanded	BASIC RAM										Clear zero ROM	8288	8288	8288	8288
VIC = 56	BASIC RAM										Clear zero ROM	8288	8288	8288	8288
VIC = 68	BASIC RAM										Clear zero ROM	8288	8288	8288	8288
VIC = 80	BASIC RAM										Clear zero ROM	8288	8288	8288	8288

Table 1

Cartridge Only	BASIC	BASIC*	Bytes Free	Screen Color	RAM Size
Unexpanded VIC-20	\$1000-\$1177	\$1000-\$1177	5683	\$1000	\$5683
VIC-20 + 1K	\$1000-\$1177	\$1000-\$1177	4655	\$1000	\$5655
VIC-20 + 1K*	\$1000-\$1177	\$1000-\$1177	3775	\$1000	\$5400
VIC-20 + 1K†	\$1000-\$1177	\$1000-\$1177	1967	\$1000	\$5400
<b>Multiple Cartridges, with Expansion Board</b>					
VIC-20 + 1K + 1K*	\$1000-\$1177	\$1000-\$1177	3775	\$1000	\$5400
VIC-20 + 1K + 1K†	\$1000-\$1177	\$1000-\$1177	1967	\$1000	\$5400
VIC-20 + 1K† + 1K†	\$1000-\$1177	\$1000-\$1177	3858	\$1000	\$5400
VIC-20 + 1K + 1K† + 1K†	\$1000-\$1177	\$1000-\$1177	3858	\$1000	\$5400
VIC points to \$1000-\$1177					
VIC points to \$1000-\$1177					
Note: *Typical†—total RAM usable by BASIC; line 222 cannot be used; line 2 uses 1 byte of the very unusual BASIC.					

language constructs can be altered in the wrong portion of the stack, if you're in it, or, a very serious situation is forced.

We'll move on now to look at the expanded VIC-20.

The BASIC memory maps for the unexpanded VIC, and for the VIC with 1K, 4K, and 16K expansions, are shown in Figure 3. It is helpful to look at the programming side of these expansions before seeing what can be done with simple hardware modifications. RAM expansion combinations are listed in Table 1. They show the start and end of BASIC, start and end of BASIC program storage, bytes free, the size of the screen, and the start of color RAM. Color RAM position is related to screen position.

## Expansion

Now that a 1K expander, if used together with another expander, is not used by BASIC (although it can be used to store random language or data). This is the best the VIC-20 can do, since it also drops position 1 from painting the screen below location \$1000. Thus, the absolute maximum length of the BASIC program storage area is from \$1000 to \$1FFF, about 10,000 bytes. Also note that the Super Expander cartridge includes an additional 1K byte of RAM, which expands the low part of memory, so a 1K expander used with the Super Expander adds nothing extra.

These are the most useful combinations for BASIC. The last two configurations represent fully expanded VIC-20s. The version which includes the 1K expander also most often matches language location in other data, but the extra 1K can't be used as for BASIC (except in unusual situations requiring a short BASIC program with a large number of variables).

The combinations in the table aren't exhaustive, because one or more 1K expanders can be switched to point to areas of RAM which is separate from the rest of RAM. Note that 1K and 16K expanders don't have that possibility either—they're modified. For example, an 1K expander can start at \$1000 with 1K in an unexpanded VIC-20. BASIC's storage area, but the same expander can go right at \$1000 in independent of BASIC and then occupied by it. It is partially susceptible to a RAM expander at BASIC to be loaded with a program from a ROM cartridge, which it can then run. Alternatively, VIC-20 can

be used to write 1K programs—short, and BASIC at BASIC, although the contents of this area cannot be directly used to tape.

If you're moving BASIC, and machine language, it is useful to have reserved RAM unaffected by BASIC, either as a 1K expander with other expansion or as an 1K expander without to reflect RAM in a disconnected block.

In practice, strange things may occur when you are a fully expanded VIC, because it is easy to forget that a certain RAM or ROM device is on. For example, programs written for the unexpanded VIC often will not run on expanded VICs, so some common memory may need to be turned off and the expander used before those programs can be run.

Generally, any program written in VIC BASIC can run in any VIC-20 with enough memory. But it also happens that a VIC won't run a program unless its memory is uninterrupted, because some element (such as BASIC's starting address) is in the wrong place. Some tape games, for example, are labeled "No RAM Expansion Necessary" when a more accurate description would be

a differently expanded VIC.

There are two distinct problems here. The first is that the VIC-20 may have expansion based on that a program won't run, even though the total memory available, as a subject, what is needed to run the program. The extra memory has caused the difficulty, for example, the screen may be in the wrong place. Unity programs which assume when the computer is turned on can also cause the rest of their source with memory. To solve this problem, either the extra RAM must be removed or the VIC must be designed by software.

## Downgrading

In the stated case, a program written for a 1K-expanded VIC may not run on one with 1K or 16K expansion or vice versa. Again, this memory is actually in a different position from what is desired. In such cases you could acquire a 1K expander, obviously, software modification is worth a try.

Program 1.2 shows Figure 3 for the VIC, in case of five ways. Downgrading is generally successful, but reconfiguring 1K or 16K expansion to run programs written for 1K expansion is problematical, so the program is simply moved to a new area. For example, BASIC POKEs into locations 32 and 34, which are at the top of BASIC must be removed.

The three most locations are each useful under different conditions.

Normal reset (as though testing out) SYS 44444.

Reset which preserves unexpanded BASIC: SYS 44414.

Reset which spaces BASIC in BASIC (for example, Super Expander, giving available RAM memory expansion POKE 76,16) SYS 44414.

Program 2 handles most of the features

## Program 2

```

1 PRINT "1. UNEXPANDED VIC", PRINT "2. VIC-1K"
2
3 PRINT "3. VIC-4K", PRINT "4. VIC-16K"
4 PRINT "5. TRY 1K ON 1K BACK", INPUT Y
5 FOR J=1 TO VERRA:GOTO 7,8,9,10
6 POKE 44,0:POKE 44,0:POKE 44,0:POKE 44,0:REM
  [SPACE]BASIC
7 SYS 44410:REM RESET BASIC WITHOUT TESTING RAM
8
9 DATA 16,32,36,4,16,36:REM DATA HOLDS START OF RAM
  3C
10 DATA 64,16,16,96,16:REM OF BASIC
11 DATA 32,64,36,16:REM SCREEN START

```

## "Will Not Work With Expansion"

The problem arises because each program assumes that its particular configuration is in use, without allowing for possible differences. Often the programmer has not understood that there could be a problem. Any program which POKEs characters to the screen, changes some of its pointers in BASIC, stores its own graphical characters in some fixed location, or relies on the use of supposedly fixed locations within BASIC RAM, is liable not to run in

if VIC is point-on expansion, except the search for an unexpanded cartridge and for the limits of RAM, which are POKEd in reset. ■

Basic Man's book *Programming the VIC* is published by Level Ltd at 118 St. and can be obtained from *Books, Star Road, Portlago Green, Hove, Sussex*.



# Going to the top of the class?

*Teacher Phil Banner puts educational software to the test, and finds that some programmers just haven't done their homework*

THERE IS little doubt that the majority of home computers are bought primarily for game-playing. There is equally little doubt that to use a computer only for playing games is like using a VCR only to watch eggs. A home computer is an immensely powerful tool which, particularly in terms of speed, sound and graphics, can perform many functions better than a human being.

## Suspicious

When microcomputers first began to appear in offices, businesses and schools, there were many people, including teachers, who were deeply suspicious of them. Some people said that they were wrong, but equally wrong in the enthusiasm who see the computer as the be all and end all. A computer cannot replace a caring parent or teacher any more than it can do away with the need for office staff. It will not go swimming, it will not dry your hair and it will not cook a meal. By the same token it will not, by itself, teach geography or painting, nor impose good standards of behaviour.

So what place does the computer have in education? The teaching of Computer Science, as an academic subject in its own right, is arguably in decline, as educators realise that the skills of programming and logic are not made in themselves. Indeed, computers are finding their way into all types of classrooms — with all subjects and age-groups — as schools see what counts they have available, at a time of education cuts, to wrap together the necessary money.

The computer, together with commercial or privately produced software, is a very potent teaching aid. It can be used with a whole class, provided a large enough

monitor is available, but more often it is used with individual or small groups of children. It is useful in reinforcing specific definitions, providing practice in, more effectively, learning at graphics and sound responses to provide a new perspective on old subject-matter. It is probably at its most valuable when it helps an element of the state mandatory rules, when the pupil learns without realising that he or she is doing so.



The more can also perform these functions on the home, but it is here that dangers loom. There is a strong temptation to parents to believe that a computer will teach their two-year-old child to read, or will turn their 10-year-old into a genius.

Examine, merely by being set in front of the screen. In fact, it is often argued that permanent damage can be caused by trying to teach a child to read too early, or by using methods which conflict with those used at school.

It is with younger children that these dangers are most apparent. For example, no computer can, by itself, teach a child to read. What it can do is reinforce the mechanical nature of background work, which should be provided by parents, in the way of matching shapes, colours and sounds, describing patterns, constructing big with small, soft with hard, and so on. Some software packages provide good documentation and guidance for parents: such as the excellent *Words and Pictures* program from Chalkboard, but with others this is sadly lacking. It is most important for parents to realise that, except in the more overtly game-type programs, the more participation is essential. The younger the child, the more important this becomes. So with a counting game, like Microsoft's *Count with Oliver*, the child should be provided with toys or sweets to count and move about, as well as those appearing on the screen. Little will be gained by dumping young Johnny on front of the keyboard and leaving him to get on with it. With older children, the child participation is still essential, but less crucial.

## Pitfalls

The other major pitfall, which hampers parents and teachers alike, is knowing which software is worth buying. There are four main questions which you should ask yourself before deciding on what may be a rather expensive program.



1) Does it teach anything worth learning?

2) Does it do anything which could not be done equally well by a book or by a responsible adult?

3) Does it provide enjoyment or is it merely tedious and unenjoyable?

4) Does it use the computer's powers of graphics, sound and almost instant recall?

An enormous amount of educational software is available for the BBC Micro, mainly because of its Government-spirited monopoly in schools, and it is rapidly being translated for use with the Commodore 64. Much of it is excellent but some is atrocious.

#### Specialists

The problem of choosing suitable programs is made worse by the fact that most of them are not easily available, except by mail-order, or cannot be viewed before buying. Although some of the software produced by the smaller houses is good, it is, perhaps worst, in these circumstances to stick to the major specialists in educational software, like chalkboard, Mirrosoft and Commodore itself, or to software produced by the heavyweight educational book publishers. For example Program, Longman and Collins. Such companies have their reputations to consider and, generally, do not release rubbish.

Chalkboard claims that its *Flukeys* and *Spelling* programs are suitable for children from eight-to-eleven old. The program places printed letters on the screen, then asks them out one word. With these words a picture appears, some

times cleverly suggested. No disorientation is included. There is a facility to add extra words and to practice spelling. An intermediate handwriting, whom I asked to try the package, was great with it. The first is a word list of some ten words early readers, but contained it for clearing confusion by superimposing letters. For use (providing enough pictures) and for learning to write in seven letters.

Chalkboard's "Words and Pictures", on the other hand, does much better. It provides a choice of four pictures for each word, and the user has to match the word, or a simple sentence, to the correct picture. A jumping frog reminds correct answers and when too often, performs a well-known children's song, with animation. With the program comes a very helpful guidebook for parents. This is certainly one of the best programs reviewed.



"Count With Oliver", from Mirrosoft consists of two counting games. There is no package for parents but the games themselves are excellent. The child is required to count various types and colours of toys and balloons which appear in a shop window, and in the many advanced game to perform simple addition and subtraction. Coloured pictures and other characters are used throughout, prompts are provided when required, and the difficulty of the questions is carefully graduated. A very good package, but one which calls for considerable back-up work from an adult.

Also from Mirrosoft is the "Back Sharp", a package of two sets of memory games written by a headmaster, whose expertise shows clearly. "Old MacDonald's Farm" is aimed at 4-7 year olds and uses animal pictures as games of snap. Of finding the odd animal of three pictures and repeating a scene which is displayed on the screen. The second program, 3 2 1, contains three games to develop observation and memory in children seven, using a space-travel theme. The games are interesting, and as we found them entertaining and challenging for children and adults alike — an excellent test of concentration. In all it is a first-rate package, and one of the few which could be of benefit to younger children with learning difficulties.

"Caesar's Travels", again from Mirrosoft, is a fine example of a game of





game which is being designed as pure, strictly instructive. A simulation, or adventure game screen is used, in which the child has to make decisions based on the letters of A, U and the C's, from Macmillan's course books. Children of twelve are invited using the function keys, for which a clear display is provided. At various times the game tests shape and colour recognition, left and right, simple counting and oral safety, as well as providing an excellent reading monitor. Animated graphics and sound are used to great advantage throughout. It is intended for children from three to nine years, but with the passage and of the age range as one would be limited. An adventure game type book is provided with the tape, and the entire product is first rate.

In contrast are two packages from Shady Software. *Fun To Learn* and *Mouse Math*. Both are intended for children of seven school age and each provides a sort of sample programme. *Fun To Learn* contains a strange mixture of a counting game, an anagram game, an address circular, a type of space hangman and a simple train code. Except in the hangman game the use of graphics is poor and the games are boring. *Mouse Math* again contains five exercises, the first to mental arithmetic. In only one of these are graphics used effectively, and the others are only deadly. It is more programmes needed that providing endless drill to most children's letters in title value.

## Punctuation

At the other end of the scale, *Punctuation Pete* runs the computer as a fun-filled adventure. Published by Bill MacCallum, it is intended for the 7-12 age range, but could also be of great value to older children who have difficulties with punctuation. The user moves Pete an animated sports along lines of text, and uses him to put basic punctuation in the appropriate places. If it is done wrongly, Pete shows where mistakes are needed, and finally obtains it himself if necessary. There is an excellent range of passages provided at graduated levels of difficulty. The only criticism I could level is that the program is rather quickly about using common before more complex ones, but otherwise I recommend it highly. As a bonus the other side of the tape carries a database of

words linked by the theme of 'travel', and hangman and anagram games which use these words. All in all it is a first rate piece of software.

Quite the worst piece of software I have seen is *World Geography* from a company having the liberty to call itself Supermac Software. At first it looks impressive, playing a high resolution map of the world on screen, but all it does is to ask for capital cities and populations of various countries, some of them more obscure. It has a nonsense to crash, it allows you to cheat by accepting any non-alphabetic key as a correct solution, and it does not tell you the right answer if you get it wrong. Worst of all, there is little value, educationally, in knowing capitals and populations anyway! For this program is being advertised widely, and no doubt many parents will be fooled into buying it, and on their program, U.K. Geography, which is in the same vein.

## Vocabulary

*The German Master* and *The French Master*, from Eoscom Software, are examples of well written programs which, nevertheless, fail to exploit the power of the computer. They are vocabulary learning programs, for use with 11-16 year olds, which are quite good but do nothing which could not be done as well without a computer, and they fail to allow for differing shades of meaning. For example, the German word "ausdrücken" means 'squeeze' or 'press', yet the program will not accept additional 'a' as a valid translation. Words and graphics are not used at all.



The best Oxford software I have found in the sort of Shakespeare plays from Penguin Study of Software. These are databases which provide the very wide references to stories which arise in the plays, and pose questions which can be to be considered. They will also provide many references to, for example, it is possible to use the *Julius Caesar* tape to find references looking "Caesar" with "Antony" as "Act 1". The programs would be useful for writing essays, for examination revision, and also as a source of ideas for teachers. I asked a specialist English teacher to try *Julius Caesar* and *The Merchant of Venice* and she was most enthusiastic.

Logman's is a highly respected publisher of school textbooks, which has selected a range of Oxford revision systems for the Commodore 64. I looked at three of them, *Mathematics*, *Chemistry* and *Computer Studies*. All of them are quite good although, of course, they are unable to cover the whole syllabus on a single tape. Each provides a range of four tapes which pupils find difficult, and the treatment given is suitable and thorough. To my mind, the "Mathematics" tape is the poorest of those I saw, so that the on-screen presentation is steady, and it ignores the most difficult aspects of transformation geometry. Nevertheless it is quite sound, and suitable in parts.



The *Computer Studies* package is particularly good, with *Chemistry* not far behind. All of them would be useful for C1 level students, though of less use for C2s. The tapes also include databases, listing topics for revision which are not otherwise covered. These are very comprehensive, but the pupil's own notes would probably be much better.

## Mathscom

With over two hundred educational packages on the market already, it is impossible to review them all. What I have tried to do is to cover as wide a range as possible, in terms of subjects and the age groups for which they are intended, and I have used the views of other teachers and pupils extensively. With the current market moving in such a direction, it is inevitable that some of it should be poor or mediocre. I hope I have provided readers with help in avoiding bad programs, so they will be able to use their judgment, and spend their money wisely. ■

# UPPER GUMTREE

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*Wotzisitallabout? Don't ask us! ask your local games shop!*

# Ride of the Valkyrie

*Secret agent Barbara Conway forsakes the lands of magic for the sandy world of conspiracy and kippers.*

ORIGINALLY, whenever plots are in a process and the heads of Hammer's *Valkyrie* (7), although fairly reminiscent of many a "B" movie storyline, has more originality than most, plus the magic ingredients of a touch of the ridiculous. Let's face it, any adventure package based on the cryptic message "the Red Kipper that, at midnight!" has to have at least some water of business.

## Background

The plot, at least the part you're allowed to know at the start, is based on events at the end of World War II when you, the player, were an Allied secret agent. Now, years later, it seems that the top secret "*Valkyrie* (7)" project has been revived by Nazi sympathisers eager for world domination. One agent has already been killed (the media made an error thoughtfully gives you his last telephone message plus the sheet which strongly hints at) and now it's up to you to take up the trail from the Citta Hotel overlooking beautiful Lake Geneva and save the world from the mysterious super weapon.

I warn you, James Bond would probably despair over this one. Your first problem is to get OUT of the Hotel where the trail, with the exception of a friendly maid, would make Bond's family's establishment look like a haven of peace and wisdom.

Before escaping, however, there are a number of areas you must pick up whilst dodging the manager and his constant demands for the bill to be paid. You can't do this (don't try fighting with him, though, he's a deadly heavy black belt) unless you have the money and on more than one occasion doesn't find him for a second. Escape is possible, however, and once you've worked that problem your troubles really begin in my first five trips to the town and surrounding areas I was killed three times (some of the scenes are really hostile and the marine life isn't a far better) in my desperate search for the elusive Hochmeister who (I think) is the key to the problem.

The *Valkyrie* scenario spreads a good deal wider than the immediate vicinity of Lake Geneva and you may find yourself referring frequently to the clock on the water pipe as well as to the highly confusing dossier (complete with aerial "*Valkyrie* (7)" footage) with the program. There are sound effects (covering the phone at the bar at different times you go see different messages) and many locations have graphics which may change according to your actions. A piece of early vandalism to get some equipment yields the appropriately altered picture.

I'm now here now solving the mystery yet, too. I'm having a lot of fun trying. The main

in Constitution has been a bit of a disappointment (perhaps Heinrich Heidegger is still all) but I have high hopes of the script. Red Kipper is red herring, *Valkyrie*'s good value.

The latest offering from Melbourne, *House of Cards of Terror*, is reminiscent of the well worn "*Vampires*" theme. As a result from this source, the program will accept complex multiple measurements as well as the standard observations and much attention has been paid to the graphics which are described in publicly stated as having "animated characters".

## Mysterious

There are last, denied graphics for all locations, some of them containing no element of animation such as the fieldworkers or the drinkers in the village pub which is where you learn the purpose of your quest. Buying a ghostly old man's post (but you've got to save the money first) you learn that his daughter has vanished mysteriously and that the source of this and other local evils is believed to be the nearby spooky castle.

With accompanying music, which switches between two themes, you approach the castle after a thorough exploration of the neighbourhood (including a quiet, and ominous, investigation of the local graveyard).



Everything about the castle, including its entrance, is procedurally initial so don't get your hopes (if you just give you a clue) as getting in easily.

It's a good professional effort, as you'd expect from Information Please, but although some of the graphics are superb, I didn't find it as gripping as *Starbuck* or as entertaining as *Hemlock*. And, at least in my review copy, there were some unfortunate bugs such as the omission of any text, an omission or text, that the final feature was present at our location.

#### Gothic

Despite a superficial similarity of name, *Goats* of *Design* from *Games Workshop* is a very different proposition. This is a Tolkien-esque fantasy adventure in which the player is the only hope of the world against an evil power known as *Malcor* or the *Scouring Shadow*. This is not only a game with a relatively simple instruction format, but a great deal of thought has obviously gone into preparing responses for all likely commands. Conversation is quite important in *Goats* as talk to everyone as they deny or change and travellers (as need to talk to Malcor's winged demons, though) and keep a sharp eye out for helpful items. It's not an all-time gem, but it found Tower rules appealing, and the screen layout, with a yellow top script, is nicely done.

*Animal Magic*, from *Born* Software, is a quest to find a baby which has been kidnapped while your attention wandered. As suggested by the title, you must, as most



adventures, some of whom are potentially dangerous, as you go in search of the missing infant. None of the puzzles should stump experienced adventurers (like wild bull elephants is ahead of only one thing — and we all know what to look for, don't we!) but it's a serviceable package with some graphics for the moments. A big star for me here.

I've been trying, my friend, as some of the other strategy games from *Addison Wesley*, but I can't repeat my brilliant success with this company's newspaper game just months. My attempts at *Warrior* in *Military Camp* have been crushed with consequences that by the time, playing

the original *General* *Norris* and my performance as *Admiral of the Fleet* in *Strategic* (early 30th century naval battles) was finally well. For the more complex strategy there are good detailed reviews with well-planned graphics. ■

If you are having problems with a Commodore adventure program, write to Barbara Conway p/o Commodore Horizons, 12/13 Little Newport Street, London WC2H 7PP, and she will look at the most common problems in *Tower of Adventure*.

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# Sounds and strings on the C16

Continuing last month's extract from the Commodore 16 Plus/4 Companion by Brian Lloyd — this month, music and more command routines

It is time we explored your computer's sound capabilities. Your computer has three different "voices", and you can use any two of these together. This means that you could have one voice playing a tune and another voice playing the rhythm. Two of the voices produce tones and the other produces white noise (this is useful for explosions and gun shots).

However, before we can produce any sound we have to set up the volume level. To do this we use the VOL command, together with a number from 0 to 8 (0 is maximum volume, 8 is minimum, or off). It is best to set the volume to maximum on type in VOLS.

Now all we have to do is to choose a note and a speed and decide how long to play it for. For instance, if we wanted to play the note C on voice one for three seconds then we would type the command SOUND 1,300,300.

The number 1 tells the computer that we want to use voice one, the number 300 tells it that we want to play the note C (the third octave, and the number 100 tells the computer that we want the note to last .3 seconds (the length of the note is calculated as a second).

Try changing the 1 of the SOUND command to a 2 and then a 3 to see what the different notes sound like.

As I said before, it is possible to have two voices playing at once. You can either have voices 1 and 2 playing together, or voices 1 and 3. If you type this line you will hear a note being played over the top of white noise.

SOUND 1,300,300 SOUND 2,300,300

The SOUND command can be used to play tones and to create effects.

The computer can continue to carry on other instructions while making a sound so you may have a tune playing in the background while something else is happening.

The note table covers four octaves, but sharps and flats are not shown. The frequency of the note is given for reference only. The value shown for each note are the notes which you should use in the second number after the SOUND statement. For example, to play the note C (third note shown) for half a second you would use the command

SOUND 1,171,60

NOTE	FREQUENCY	VALUE
A	130.8	31
B	146.8	33
C	164.8	35
D	184.6	37
E	206.3	39
F	229.1	41
G	253.7	43
A	280.1	45
B	309.0	47
C	339.6	49
D	372.1	51
E	406.8	53
F	443.9	55
G	483.5	57
A	525.7	59
B	570.8	61
C	618.8	63
D	669.9	65
E	724.3	67
F	782.1	69
G	843.5	71
A	908.8	73
B	978.1	75
C	1051.7	77
D	1129.9	79
E	1213.0	81
F	1301.4	83
G	1395.5	85
A	1495.8	87

You may play a note of nearly any frequency. If you know the frequency of the note which you require then you can calculate the value to be used in the SOUND statement using the formula

$$VALUE = 1024 \times (100000 / \text{FREQUENCY})$$

In using GOTO and GOSUB you cannot use a variable instead of a line number with these commands. To make up for this, your computer has been supplied with the commands ON GOTO and ON GOSUB. These commands will GOTO or GOSUB a line depending on the value of a variable. For instance, if the computer encountered the line

100 ON XZ GOTO 2000, 3000, 4000, 5000

then it would look to see what number the variable XZ represents and then GOTO one of the following line numbers depending on that value. If the value of XZ is 1 then the computer will GOTO line 2000. If the value is 2 then the computer will GOTO line 3000, and so on.

The ON GOSUB command works in

## Beats Per Minute

```
10 SCRNL 104:8 PRINT "DOCTOR PULSE"
20 FOR N = 1 TO 10:READ NOTE, LENGTH
30 SOUND 1, NOTE, LENGTH
40 NEXT N
50 FOR N = 1 TO 3000: NEXT N
60 RUN
70 DATA 779,60,779,30,834,60,834,30,810,30,810,30,830,30,798,60,
798,30
80 DATA 779,60,779,30,798,30,770,30,770,30,770,60,770,60,779,30,
779,30
90 DATA 779,30,779,30,834,30,834,30,798,30,810,30,834,30,810,30,
834,30
100 DATA 834,30,834,30,798,30,798,30,798,30,834,30,770,30,834,30,
834,30
```

## Telephone

```
10 SCRNL 1
20 VOLS
30 FOR M = 1 TO 10
40 FOR N = 1 TO 10: SOUND 1, 850, 1: SOUND 1, 700, 1: NEXT N
50 FOR N = 1 TO 50: NEXT M: FOR N = 1 TO M: SOUND 1, 850, 1
60 SOUND 1, 700, 1: NEXT N
70 FOR N = 1 TO 1000: NEXT M: M
80 FOR N = 1 TO 8: SOUND 1, 850, 1: SOUND 1, 700, 1: NEXT M
90 SOUND 1, 850, 20
90 FOR N = 8 TO 8 STEP - 1: VOL N: FOR M = 1 TO 5: NEXT M: N
```

10 SLEEP 1

20 FOR N=9 TO 18:CHAR 1,17,N,"[CONTROL 3 CONTROL 9]"  
NEXT

30 DICE=INT(RND\*6)+1:IF DICE=7 THEN GOTO 30

40 ON DICE GOSUB 60,70,80,90,10,30,100

50 FOR N=1 TO 1000 NEXT:RUN

60 CHAR 1,10,11,""" CHAR 1,17,14,"ONE " RETURN

70 CHAR 1,18,10,""" CHAR 1,20,12,""

80 CHAR 1,17,14,"TWO " RETURN

90 CHAR 1,18,10,""" CHAR 1,19,11,""" CHAR 1,20,12,""

100 CHAR 1,17,14,"THREE" RETURN

110 CHAR 1,18,10,""" CHAR 1,18,12,""

120 CHAR 1,17,14,"FOUR " RETURN

130 CHAR 1,18,10,""" CHAR 1,19,11,""" CHAR 1,18,12,""

140 CHAR 1,17,14,"FIVE " RETURN

150 CHAR 1,18,10,""" CHAR 1,18,11,""" CHAR 1,18,12,""

160 CHAR 1,17,14," SIX " RETURN

exactly the same way as the ON GOTO command, except that it GOSUBs to a SUB routine which should end with a RETURN statement, as with a normal GOSUB command.

Program Four contains a die and uses the ON GOSUB command.

When you use the square brackets in Line 20, the calculator that you should change the first colour to purple and switch reverse on the previous CONTROL 3 then CONTROL 9.

The program works in this way:

Line 10 Clear the screen

Line 20 Change the first colour to purple and print a solid block 5 lines deep and 3 characters wide, with the first block in the character repeat 17 times and 14 characters down.

Line 30 Choose a random number between 0 and 6, multiply it by ten and round it up before adding one to the result. Assign the final number to the variable DICE. If the value of the variable DICE is even then carry out the line again choosing a random number between 0 and 6, then adding 1 and rounding down makes a possible that a six will come up. The computer very rarely chooses the highest number possible when choosing a random number and therefore RANDOM " is almost always less than seven.

Line 40 If the value of the variable DICE is 1 THEN GOTO the subprogram starting at line 60. If the value of DICE is 2 THEN GOTO the subprogram starting at line 70. If the value of DICE is 3 THEN GOTO the subprogram starting at line 80 and so on.

Line 50 Empty FOR NEXT loop — causes a delay before returning to the program.

Line 60 Display a single star at the character square 19 across and 11 down then display the message ONE in the 0 on the 17th column across and the 14th row down before returning to the command immediately after the GOSUB command which jumped to this routine.

Line 70 Display a single star at the character square 18 across and 10 down then display another star at the character

square which is 20 across and 12 down.

Line 80 Display the message TWO with the T on the 17th column across and 14th row down.

All four of the last 40 are similar to 60-80 — they just display various numbers of stars.

If you are trying to run a program from a book or a magazine then it can become very boring having to type line numbers, especially if the lines are numbered closely like 10, 20, 30 and so on. In order to speed



up the work on such programs, and also to make it less boring, your computer has been equipped with an AUTOON, line number command. If you type an AUTO 10

and then start typing in a short program you will see that as soon as you have entered RETURN at the end of the first line, the next line numbers will appear for you automatically.

The number after the AUTO command tells the computer how much each line number is increased by. So if you type AUTO 50 the computer will number the lines 50, 100, 150 and so on.

At the end of the program you enter the number 10, the number 10 tells the computer to add 10 to the next line number. For instance, if you have finished your program at line 150 and the computer displays the next line number 160 and wants for you to type in some more of your program you should just press RETURN without typing anything else.

In some circumstances you may need to reset all the variables in the middle of a program. The easiest way to do this is to use the CLEAR command. The program itself is not stopped or altered in any way.

The CLR command is entered automatically when you enter a program list or RUN a program.

It is often useful to be able to find out the CHR\$ code for a character. Fortunately for us, your computer has a command which allows us to find out the CHR\$ code for any character without having to look it up in a table. This command is ASC.

If you type

PRINT ASC("A")

You will see the number 65 appear on the screen. 65 is the CHR\$ code for the A symbol. You can find the CHR\$ code for any character like this, all you have to do is enclose the character in quotation marks, and enclose them in brackets, as in the above example.

The VAL command is a function which returns the value of a string variable. For instance, if the string variable BND had previously been set to 501 then the command

Z=VAL(BND)

would assign the number 501 to the variable Z.

If there is a combination of letters and numbers in the string variable then one of two things will happen. If the string starts with a number then the value returned by the VAL command will be the value of that number (ie PRINT VAL("123") would return the value 12).

STR\$ is the opposite to VAL, for this function converts a number to a string. For instance if you had a line such as this

120 A\$=STR\$(884)

then the string variable A\$ would be assigned the characters 884.

The STR\$ command will always add a space before the number as the start of the string variable so when the characters are to be stored. For instance if you entered the program

10 SLEEP 1; A\$=STR\$(884)

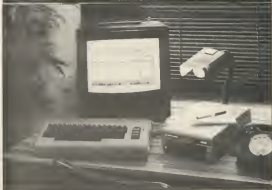
20 PRINT A\$ PRINT LEN(A\$)

30 A\$=RIGHT(A\$,3)

40 PRINT A\$ PRINT LEN(A\$)

You will see that a space has been added before the number when it was stored on the string variable A\$. Line 30 effectively removes this space, and when the string is displayed a second time along with the number of characters in that string, you will see that the space has been removed.

**The Commodore 64 Plus/4 Companion**  
by Brian Lloyd is published by Southern Books at £9.95, from bookshops or by mail order.



## A two-way affair — micro to micro

*Brian Lloyd introduces another form of micro communications — the privately operated bulletin boards which are growing in popularity*

IF YOU ARE the sort of person who believes that there must be more to life than competing their playing games, then the world of micro communications may be of interest to you. When you enter the field it is like a real time adventure, trying to discover new ways of using your micro to communicate with other micros.

### Bulletins

One of the best ways to start is to connect out to the many bulletin board services that are springing up around the country. However, before we look at what we need to access the bulletin board services, a few words of advice would not go amiss. Nearly all bulletin boards are run by private individuals who give up a tremendous amount of their free time and, I suspect, a lot of money to provide a free service for you and I. So please do not abuse the system, otherwise the next time you call it up you may not get an answer. Always log on with your proper name and if you are

asked for other details about yourself always tell the truth.

Besides we can connect a home micro to one of these bulletin board services we need to have (1) a telephone modem, (2) a suitable RS232 interface, (3) software so that the micro can communicate with each other through the RS232 ports. I use a Triconex 5 modem together with the Novodon software that is available free on most bulletin boards.

This program allows you to upload as well as download software from the bulletin boards. The upload part of the program is quite important, as all bulletin boards are essentially a two-way affair with you hopefully contributing your bit to the service. Most bulletin boards run at 300/600 baud full duplex although a growing number are using the Pitman baud rate of 1200/75. If you read last month's article on modems for the Commodore 64, you should have a fair idea on what modems to buy. However, if you are fairly

with a soldering iron you do not have to buy an expensive modem and interface. Maplin sell a modem and RS232 interface as kit form for about forty pounds, and with a simple program (see listing 3) you are on your way.

Having purchased all the above, what do you get for the bother? As I mentioned earlier, exploring the various bulletin boards is like going on an adventure with every new board you discover offering something new. I will not go into detail as to what each bulletin board offers as this would spoil some of the fun, so I will confine myself to what they all provide.

### Mail boxes

Nearly all bulletin boards offer a type of mailbox service where you can send and receive messages from other users. Advice on something that is always freely available should you find yourself with a micro problem. Many boards allow users to place ads to sell their bits and pieces. There is

usually software is to be downloaded first of charge so that in when the Modem program will come in handy, but please make a two-way, don't just download software, upload some of those useful programs and routines you have written as well, so that other people can benefit from them.

The one thing you will always find on any bulletin board service is a very friendly, helpful bunch of people. The system operators (operators for short) are always willing to offer help and advice to anyone.

Now you know something of what is open, let's try one of the boards from List 1 taking note of the name they operate. First check that your computer, modem, disk drive and so on are connected properly and your modem is set on the correct baud rate which the modem instructions specify. Load the Communications program and run it. Next comes the waiting bit. Dial up your chosen number, if you are lucky, and the modem is also engaged you should get a whistling sound. Switch your modem on-line and, if all is well, you should be greeted with the board's opening page and perhaps some news items about the system. You will eventually be asked to identify yourself. Answer the prompts with your prompt name, as there will be logged so the system will know you next time and can be used for leaving messages for you. Having logged-in you will be presented with a menu of what the system offers and how much time you will be allowed on the system.

#### Operation

There is usually a new user section, and you would be well advised to go through the section and make notes in case you go. It would be a good idea to do the already new board you find, as it would not damage your telephone bill by using a lot. Please make sure before you telephone, that the board is in operation, all boards do not operate 24 hours a day. You may find that some bulletin boards operate a ring back system. This means you telephone the board, in

## Listing 1

```

10 REM COMMODORE 64 300/300 BAUD TERMINAL PROGRAM
10 POKE 53200,00:POKE 53201,00:POKE 6446,1
11 WAIT 200,64
12 PRINT CHR$(147)
13 PRINT* TELEPHONE COMPUTER*
17 PRINT* *****
20 OPEN 10:2,0,CHR$(166)+CHR$(0)
25 IF PEEK(203) < 64 THEN GOTO 100
30 GET#10,64
35 IF AS="*" THEN GOTO 25
40 IF ASCII(1) > 95 THEN GOTO 35
50 IF AS=CHR$(13) THEN PRINT AS:1 GOTO 25
60 IF ASCII(1) < 32 THEN GOTO 25
70 PRINT AS:1 GOTO 25
100 POKE 203,64:SET #0
110 IF 00=CHR$(17) THEN PRINT 00=CHR$(10)
120 IF 00=CHR$(19) THEN PRINT 00=CHR$(140)
130 PRINT #10,00:1:POKE 203,64:00="*":GOTO 30

```

the telephone ring once and then ring off. You then telephone back again straight away, the time you should hear the whistling sound.

Bulletin board systems are not made out, really one person can access it at the most so you will have to be patient if the number is engaged. Don't get up as all bulletin boards are worth looking at and it is usually the most popular ones that are the hardest to get onto.

List 2 is not a full list of all the bulletin boards available as there are many thousands all over the world — it is just a list to get you started. It may be worth checking with your local council as many of them now run their own bulletin board service. If you really get the bug you may like to purchase one of the many books on bulletin boards around the world. If you

want to try the USA, the Computer Telephone Book is worth looking at, especially if you do not have to pay for the telephone calls.

The world of many communications is really worth looking into as it opens up all sorts of possibilities and other all, if the experts are to be believed, everyone will be using services in communications with each other before long. Have fun, but please do not abuse the systems and remember the bulletin boards are provided free for all to use.

If you would like a free listing of the Modem program for the Commodore 64. Send a large stamped and addressed envelope (A4) plus 20p P & C to cover cost of printing to:

B Lloyd, 9 Haverham Walk, Welwyn  
Herts CM8 2LT. ■

## Sample bulletin boards

BLANFORD BOARD.....	0050 54494 (300/300 baud)
C. A. B. B.....	01 631 3076 (300/300 and 1200/75 baud)
C. B. B. S.....	0092 50116 (300/300 baud)
CHILTON (10.30-22.30).....	07073 20723 (300/300 baud)
CITY BULLETIN BOARD.....	01 686 4174 (300/300 and 1200/75 baud)
CUMBRIA (ring back 10.00-22.00).....	069 92314 (300/300 and 1200/75 baud)
C-VIEW.....	0702 546373 (1200/75 baud)
DISTEL (commercial).....	01 679 1000 (300/300 baud)
ESTEL (commercial 09.00-10.00).....	0279 442511 (300 baud)
HALL-FORUM 00.....	0462 059169 (300/300 baud)
LIVERPOOL MAILBOX 00.....	051 420 0924 (300/300 baud)
LONDON TRDS.....	01 340 9400 (300/300 baud)
MAPTEL (mainline).....	0700 502941 (300/300 baud)
H. O. B. B.....	0417 368449 (300/300 and 1200/75 baud)
H. B. B. S. EAST (22.00-19.00).....	0492 630106 (300/300 baud)

800,000 BPs. Begone for thinking that all computer programmers are male under 30 — it's where women like me fit in best, with the possible exception of adventure games: you might think that computing as a whole was out of the last bastion of male exclusivity.

Hanan Samara is one of the very few female home-computer programmers, and her Micromega game *Jinn* came in last of the most interesting and outstanding Commodore programs released recently.

Hanan has a Masters Degree in math, and first learnt a computer language, Fortran, as a necessary tool for completing her thesis. "I was working on a scheduling project and found I needed to use a computer," she explains.

Learning assembly, Hanan worked with text editors for International Computer Systems and "picked up" 286 machine code. As the machine is, a wordsmith too — there's no hint of false modesty here, Hanan seems to regard it as no great feat.

Moving to Thors Eftell, her Assembly experience earned her a job as program designer and project leader, chiefly on Atari programs.

But understanding assembly language and writing computer games are not necessarily connected. Why games? I asked. Hanan referred to one of the programs which sparked her interest, with obvious enthusiasm: "I remember the first thing I ever saw: it was some sort of children's program involving *Harvey Dumps*, and was almost like a little movie."

## Dahdi

Last January Hanan set up her own company, Dahdi Software, with employer as Thors employee Adnan Wadley. Dahdi will concentrate on producing games for other companies to market, and doing conversion and development work so contact. We talked about the thrill of programming in general, and the work on *Jinn* (see sidebar on sidebar).

"The thing that excites me most is getting an idea and gradually turning it into reality through various stages."

"With *Jinn* (see sidebar) I was drawing on my

## PROFILE

# Tales from the Arabianknights

*Graham Taylor takes a magic carpet ride with Micromega's first CSM 64 programmer, Hanan Samara*



own culture as an Arab. I had brought up such scenes of Sinbad and gems and it seemed a good idea to use them as a game. You start with the basic idea that you have an Idris in Caspian which you must get into a bottle — that's your starting point, so then there's the question of where does the Genie start off, and where is the bottle."

"The final version of the game was quite different from some of my original ideas. I had originally thought it might be set in an ice like many of the Sinbad stories. The game is set in the desert, and the process of getting the Idris into the bottle stretches over four screens. In the first you battle demons on your magic carpet, on the second you search for the magic door, on the third you look for a shelter, and release a prisoner, and finally you go to trap the Idris."

"From the start, this is a matter of

holding onto it and getting it all done at the time of a story based, you like those used for videos. Once it looked right on the story board the various screens could be designed by drawing the stages on squared paper. Actually cover the storyboard with designs are quite the riding is extremely quick, except when you have specific problems to overcome like making the swirling smooth and so on."

## Commercial

On the Commodore 64 as a programming machine, Hanan recognizes that whatever the drawbacks, the market success of the 64 makes it and the Spectrum vital commercial targets. "Well, since I worked first with the Atari, I tend to favour it. For a machine that old it still has many more features that help the programmer. Nevertheless the idea about the Atari is okay, as long as you get some options — with the Spectrum, for example, there's nothing there to work with — you even have to write your own scrolling routines."

Hanan went into more detail about the way she uses the 64 and the problems she faces as a programmer. "Well, right apart from I mean, although obviously you can use attempts to give you multiples of five. The SID chip is continuously very powerful, but you have to work very hard to set it up — sometimes the randomness on the colour is multi-colour made it a problem."

"One thing I do like is the way you can get the hardware square to move like a y position of the screen — that's very useful. I guess you were complaining about the collision detection routine — all they really tell you is that something has hit something, while what you really need to know is exactly what object has hit what."

Returning to *Jinn* (see sidebar) as a game, I noticed that rather than everything that I had played recently, it was actually possible



complete the game and get through all the screens at the highest level after only a few plays. "Was that intentional?" "Oh yes, definitely. I always make sure a game is possible to do early on, but equally ensure that it gets gradually more and more difficult — to a certain extent that probably reflects US games thinking, which is where much of my work has been done in the past. I recognise that in that country you can get away with things getting tougher earlier — people have more patience here it seems."

### Boardgames

The Commodore 64 will feature strongly in Haines's future plans. Four programs are planned, one arcade game which she describes as a kind of test, a program designed for advertising purposes — a kind of story creation display — and two "board" games. Haines is reluctant to talk about future plans for machines which are a mixture of business and fun and, well, experimentation. "I sometimes think that people's ideas float up into the air and then other people's heads."

I did persuade her to say a little more about the board games. "It's an idea we are talking about at the moment to do some computer version of some board games that are not well known here, but have nevertheless been very successful — we want to do some things which are more complicated than what's been done previously on computers. I'd particularly like to do some things where it isn't all instant response, and you have to think."

With shades of that original Humphrey Dumpty children's program in mind, Haines



*"The thing that excites me most is getting an idea and gradually turning it into reality."*

is also interested in trying to do some educational software. "The problem is that most educational software is so bad. To do something good would need a lot of time and effort."

I asked if Helen would ever market its own games instead of selling them to other people. "Obviously we would like to, but the financial risk and stresses it imply are just too big at the moment." Nevertheless, some of Haines's experience with other software companies has enabled a large

degree of caution very quickly.

"I have had quite a few bad experiences, programs I've written have not been sold, and properly, and generally the whole business of negotiating contracts is taking up more and more time — these days I want to do my programming in as little time as I can — it's just the way it is."

Haines adds wryly, "When you start a software business you gradually realise there is so much more to it than just programming." ■

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# COMMODORE SOFTWARE FILE

## Flight Master

*Our first window program for the C64  
comes from David Worske of London*

FLIGHT MASTER isn't as much a flight simulator, it's more an abstract model of aviation.

After the title screen you see the runway displayed, and you take off by pressing the up cursor key. If you release it too soon or press the wrong key you will crash.

Once in the air, you must keep the

horizontal level and in the middle of the screen by using the four cursor keys. If you can keep level for long enough you will see the landing runway, and you must then land using the down cursor key.

The program demonstrates the C64's superior sound and its 16 graphics channels.

```
10 REM      ** FLIGHT MASTER **
20 REM      ** DAVID HISCOCK **
30 TL=152 TR=154 L=7 R=313 SW=5 LH=2" (H=1 R=152 T=H SH=150 RH=155 FL=0
40 COLOR 1:2 COLOR 0:1 COLOR 4:1 VOLD
50 GRAPHIC 2:1
60 BOX 1:0,155,316:0:0
70 ON VFL CL0 GO TO 120,200
80 DRAW 1:2,T TO 315,R,10:0 SOUND 3,T*5.7
90 GET # IF #<0 THEN 330
100 #=#+2000000(1): IF #<2 OR #>15 THEN 420
110 FL=FL+1 IF FL=0 THEN 300 ELSE 0
120 GET # IF #<0 THEN 400
130 DRAW 1:L,150 TO TL,W,0:0 DRAW 1:R,150 TO TR,W,0:0 DRAW 1:TL,W TO TR,W,0:0
140 IF #=" THEN 170
150 SOUND 3,W*5.5:5
160 IF #<0 THEN 00 ELSE 120
170 DRAW 0:L,150 TO TL,W,0:0 DRAW 0:R,150 TO TR,W,0:0 DRAW 0:TL,W TO TR,W,0:0
180 #=#+4 TL=TL-2 TR=TR+2
190 SOUND 3,W*5.5:4 SOUND 3,W*5.5:2 GO TO 100
200 CHR 1:12:4,"FLIGHT MASTER"
210 SOUND 1:10:200
220 FOR VV=1 TO 2000 NEXT VV
230 CHR 1:10:0,"BY DAVID HISCOCK"
240 FOR VV=1 TO 1000 NEXT VV
250 GRAPHIC 0
260 CHR 1:6:4,"PRESS AND HOLD THE ↑ KEY" CHR 1:12:0,"INFO CONTINUE"
270 FOR VV=1 TO 10000
280 SOUND 3:1020:0 SOUND 1:00:5
290 GET TR IF TR=" THEN 320
300 FOR ZZ=1 TO 100 NEXT ZZ
310 NEXT VV
320 LH="1" GO TO 50
330 DRAW 0:2,T TO 315,R,10:0
340 SOUND 3,T*5.0
350 IF #=" THEN T=T-10 #=#-10
360 IF #=" THEN T=T+10 #=#+10
370 IF #=" THEN T=T+10 #=#+10
380 IF #=" THEN T=T-10 #=#-10
390 IF #<10 THEN #=#-10 SOUND 1:750:4
400 IF T>140 THEN T=T-10 SOUND 1:750:4
410 IF #<11 OR T<11 THEN 400 ELSE 00
420 DRAW 0:2,T TO 315,R,10:0
430 IF #<2 THEN T=T-10 #=#-10
440 IF #>15 THEN T=T+10 #=#+10 SOUND 3:100:7
450 GO TO 350
460 FOR K=5000 TO 400 STEP-10
470 GRAPHIC 0:0 COLOR 0:0 SOUND 3,K:0
480 GRAPHIC 0:1 COLOR 0:1
490 NEXT K STOP
500 #=#+4 DRAW 0:2,T TO 315,R,10:0
510 #=T
```

```

528 DRAW 1.2,T TO 315,R,10,0
529 GET Y#
530 DRAW 1.6H,MM TO 151,T+1,10,0 DRAW 1.6H,MM TO 151,T+1,10,0 DRAW 1.6H,MM TO 151,T+1,10,0
531 IF 640150 AND T>135 THEN 538
532 SOUND 3,MM#5,5
533 FOR F#1 TO 100 NEXT F#
534 DRAW 6.6H,MM TO 151,T+1,10,0 DRAW 6.6H,MM TO 151,T+1,10,0 DRAW 6.6H,MM TO 151,T+1,10,0
535 SOUND 3,MM#6,5 IF Y#="F" THEN 510
536 MM#MM+1,CH#CH+1,MM#MM+1 IF 640134 THEN 400 ELSE 530
537 DRAW 6.2,T TO 315,R,10,0 T=T+2
538 IF TMM=2 THEN 400 ELSE 510
539 GRR 1.13,T,"PLANE LEAVED" SOUND 1,000,35 SOUND 1,000,35 SOUND 1,000,35
540 SOUND 1,000,35 SOUND 1,000,35

```

**Wien: Wie geht es nach dem Sturm?**

[illegible]

[illegible]

# commodore

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Kenn Beep is a member of The Commodore Computers 44 (see Commodore) and a regular contributor to *Personal Computer World*, *Commodore Horizons* and *Personal Computer World*.

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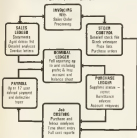


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£29.95 (disk)  
Prices are exclusive of VAT. There is also a small charge for post and packing.







## ANSWER BACK

### Hi-res Raeto

CAN YOU tell me how to make the whole screen high-resolution on the IBM, Ya? The Programmers' Reference Guide doesn't cover this, and Commodore has been unable to help me. Can you explain how to do this and how to plot point on the 16-bit screen?  
P. Elkman

**Maybe**  
Comwell  
THE REFERENCE book you need is Boris Yon's Programming the 16, which is available from Bittins, near Buxton, Pudding Lane, Buxton, Sussex. The price £25 you'll find a Basic program for full-screen joystick-controlled plotting in 16-bit mode. The program allows plotting and a screen 26 columns by 34 rows in size. In full colour.

### Losing pounds

I USE THE brilliant Watrous word processor with my 64 and Brother HB15 printer, and have always found Cabin Lucy and You to be very helpful in solving my problems. It's great to find a software supplier who cares about what happens to customers after they've paid for the goods!

Now I'm looking for someone who can tell me how to work to print the 2 eggs 16's there on the displayboard, but not try to print 4—when it comes to materials, the Brother HB15 really takes the body pain. Any further in doing answer over thank!  
J. Dink

**Chapel de La Fish**  
Derbyshire  
THE 2 EGGN is otherwise 92 on the 64, and only well to CHURCH on 64 on your HB15. It's a matter of trial and error to work it out. Try 40 Row, and if that does not

print out 2 Eggs and a loop as follows.  
10 OPEN 1:4  
20 FOR I = 1 TO 127  
30 PRINT:INPUT NEXT  
40 CLOSE

Then should print all the characters on the print wheel and enable you to establish which character corresponds to I. Failing that, your printer may require its carriage separator to be used in order to access other parts of the print wheel. CHURCH is normally used in Europe, but it's possible your printer may require two characters to be used. Read your manual carefully and see what is mentioned about carriage separator. It may even make sense to use the job

### Going Forth

Is there a version of Forth on disk for the Vic 20? I have the cartridge Forth from Datamation, but I can't find a disk version.  
David Curran  
Middlesbrough  
London

YOU CAN get Forth Forth on disk from Adams, via Adamsco, 18 Newark Avenue, Hertsford, Essex, E96-5M084. The program requires a Vic which is at least 66 expansion, and is also available for the 64.

### Superbase solution

I HAVE A 64, a 1M1 and a QDC FT 5001 which has a 1-megabyte parallel overlay. I had hoped to use Precision Software's Superbase, which is excellent, but I can't find an interface which allows me to use it with the printer. It seems that all the software based interfaces made in part of the money used by Superbase. Can you suggest a reasonably priced interface which will not interfere with the program?  
P. J. C. Aueron  
Essex

**Comwell**  
ALL YOU need is a Printlink 40 interface fully available from Microsoft at 7 Clydehill Close, Boreham

Wood, Herts, H1-253 8395. The cable costs around £25. Superbase has a software driver module which provides all the software needed, and if you want to use the Printlink interface Superbase you can buy a software package from Microsoft for £2.

### Pay your money . . .

I HAVE A 64 with a 1M1 and a Shandon CP80 printer, and a Triplex printer interface. Could you suggest a suitable payroll program which would come around 30 employees?  
Ray Walsley  
Boreham

**Comwell**  
YOU COULD try Payroll Plus 40 from Landsoft, 28 Slope Lane, London SW14, 01-878 7844. This program caters for up to 100 employees and has no special printer requirements, but it does not provide for statutory sick pay calculations. There is a phrase service in case of problems and the program seems easy to use.

### Pseudo- random

I HAVE recently discovered a flaw in the Commodore 64. After using a short program to generate a random number, I have found that after turning the computer off and trying again the same random number is generated. Could you explain?  
Chris Watson  
Derbyshire

**James**  
THE VALUES produced by the 64's random number generator using RND are always the same when using a positive argument. This is not a fault, and can be used to good effect in some programs. The way to produce a genuinely random number is to use RND-TH as a seed for the number generator, and in a later line use RND(0) for your sequence. Try from power up:  
10 S=RND-TH  
20 FOR I = 1 TO 10  
30 PRINT RND(I)  
40 NEXT

### 80 column scream

I HAVE A 64 with 1M1 disk drive, 1701 monitor and Brother HB15 printer. Using Easy Script I find I have a very good word processing system, but I find the 40 character width screen a drawback. Is there any way I can use that equipment such as a module or disk based program to expand the screen width to 80 characters? A. Walker  
Chichester  
I DON'T know of a way of using Easy Script with an 80 column screen, but even if I did I wouldn't recommend it — the 40 column system I've seen can give you a perfect view of eye strain!

Try using the Paper City word processor, which can be switched across while being output to the screen.

### VAT attack

MY FATHER runs a shop and has problems with VAT. He has asked me to buy a program for my Vic 30 which will work out 15% of a range of numbers, find out if, but I haven't been able to find one. Can you make any suggestions?  
J. Ward  
Leam

IT'S VERY simple to carry out this type of calculation in Basic. Try the following program, which will work for any Commodore computer.  
10 T = 0  
20 PRINT "ENTER NUMBER"  
30 PRINT "END TO END"  
40 INPUT A\$N = ""  
50 T = T + A\$N  
60 PRINT "TOTAL VAT AT 15% OF "T" = "T \* .15

If you need help with a technical query or problem write to Jack Caffee  
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HOLT SAUNDERS

March 1983 Commodore Bulletin 25

If YOU'RE tired of using your computer with an old black and white portable TV, or fed up with a million arguments over who paid to see, the handy yet, DER has the solution.

The Ferguson MCH is a full-function portable colour TV, but because it has DER sockets for about 5000 and composite video input it also functions as a computer monitor. Because the signal isn't demodulated before being transmitted to the screen, the result is a sharp picture and clear sound. The MCH TV/Monitor normally costs £125, including the appropriate stereo-control lead for your CDM or Yeo 20, so it can be hired from DER stores from £10.00 per month.

To win an MCH donated by DER, all you have to do is put in order of merit the names of the winners of the 1000 most important events in "casualty portable" form mark on your entry 1, C — and so on through to 6.

When you've done that, complete the following for transfer to an apt, winning and original answer in 1000 words or less. DER puts you in the picture because.

Add your name and address and send your entry on a POSTCARD to DER Centre, Commodore House 12/13 Little Newport Street, London WC2E 8PP, to arrive by the last day of March. Results will be announced in the May issue. Normal competition rules apply.

The results of the January Beyond Beyond competition are as follows: the small winner is M. Tappin of Basingstoke, who received copies of Phil Warren, Poetism and Lords of Midnight. The first 20 runner-up receive copies of Phil Warren, Stephen Foster Bates, Wanderlust M. J. Davies, Llandudno, P. D. Connors, Newcastle, R. Robinson, Newcastle, M. Robinson, Newcastle, Thomas Hall, S. Solman, Shildon, David Collins, Gilling, P. McMillan, Aulington, John Wainwright, Tisbury, G. J. Wilson, Lough, G. Nieldon, Birmingham, P. B. Jones, Mallow, I. M. McKelvey, Inverclyde, C. J. Newman, Ladbroke, P. David, Mable, Borge, E. G. Chapman, Chesham, R. Smyth, Macclesfield, W. Jackson, Oxford, C. Behan, Harford, M. A. Hinchey, Llandudno.

The second 20 runner-up receive copies of Poetism for the 1000 R. Scott, Gaskarth, E. Palmer, Bedford, J. McCarthy, Newark, E. M. Howell, Bristol, S. Conway, Kilmory, J. Colman, Bristol, S. Wilson, Nottingham, M. J. Williamson, Boston, M. LeVall, Bedfordshire, P. Mann, Portsmouth, A. Gurney, Bawdon, M. E. Jones, Reading, G. P. M. Wap, Plymouth, A. Marsh, Wotton, D. J. Stokes, Birmingham, P. Bore, Plymouth, D. Wright, Harford, R. Evans, Liverpool, M. Pugh, Croydon, H. Harton, Stoke-on-Trent.

Every entrant will receive free membership of the Beyond Club, and a voucher entitling them to all off the Beyond game of their choice with the first edition of the club newsletter published in May.

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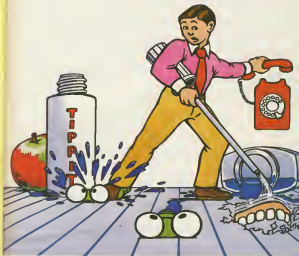
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All you have to do is look at the map and follow these instructions. Each square is one mile on each side.

Starting from point A, you take over the airway and take off heading north. After passing over a body of water you start coming to north-west and fly for one minute at 600 miles per hour. You spot an enemy installation and after crossing the river flying at 1200 miles per hour for a quarter of a minute you then rise south for three miles, and, coming under enemy attack, alter course south-west and you pass over a body of water. You then fly south-east for seven miles, when your fuel warning light goes on. You have to land but a chance call — but what are your co-ordinates?

To win a copy of **Fighter Pilot**, wrap down the number below, look for the square, then complete the five borders in an apt amusing and original manner to fifteen words of fewer. I want to read for the stars with **Fighter Pilot** because...

Send your entries on a POSTCARD with your name and address to **Fighter Pilot Competition, Commander Magazine, 101/102 Little Newport Street, London**

WC2H 3PP. Competition closes on the last day of March and results will be announced in the May edition. Normal competition rules apply.

#### Previous winners

The winners of the January **Commander** RAE competition are Mark Biley, Harlow, James Bache, Poole & Palmer, Bedford

M LeMaitre, Purley, Dean Owen, Gorse Newwood, P Busby, Hull, P Bates, Plymouth, and M Jones, Swansea. Each will receive a Chartak RAE radio and headset plus a copy of the game **Fighter Pilot** of Bear Group. The winner of the November **Commander** telegraph competition is C M Terry of Nottingham. The prize is a Price Aural 400 telegraph from Devco.



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